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# Worldwide Report

ENVIRONMENTAL QUALITY

No. 342



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# POLLUTION LINK TO URANIUM MINE IN NORTH HOTLY DEBATED

Canberra THE AUSTRALIAN in English 5 Jan 82 p 2

[Article by Errol Simper]

[Text]

SERIOUS pollution occurring near the Northern Territory's Rum Jungle uranium mine has little or nothing to do with the fact that uranium was the mineral being mined, according to an Australian Atomic Energy Commission report.

The commission rules out radioactive radium as a pollutant and says radium absorption by animals, plants and surface soils in the region is no greater than natural levels found in other parts of the Northern Territory.

But it does admit that other types of pollution have been caused by the mining.

The devastation of plant and fish life near the township of Batchelor, about 90km south of Darwin, has caused continuing controversy and is a significant cornerstone of the anti-uranium mining lobby.

The Northern Territory Government, with technical assistance from the commission, is preparing an environmental report on the region, the findings of which are expected to determine the amount of Federal Government funding to be set aside for rehabilitation work.

The commission's report finds that pollution, which continues to devastate sections of the nearby Finniss River, is largely due to sulphur

— in the form of pyrites — in mine overburden.

The latest edition of the commission's publication, Nuclear News, devotes almost all its space to a detailed report on Rum Jungle and concedes major pollution did result from the mining operation. One section of the document lists the pollution in some detail.

But, the document goes on: "The most serious pollution at Rum Jungle is not a consequence of the fact that it is uranium that is being mined. Similar chemical pollution problems occur with the mining of other minerals."

The report, the result of several studies over several years by scientists at the Lucas Heights nuclear research establishment near Sydney, says a big problem at Rum Jungle was that material excavated to uncover the ore bodies in open-cut mines — overburden — was later dumped in heaps and exposed to the air.

"Some of these heaps contain sulphur in the form of pyrites, called 'fool's gold' when it has a yellow lustre," it says. "Exposure of pyrites to water and air caused pollution by acid and by dissolved metals such as copper."

"This process has continued ever since and is still going on."

"After mining was completed, the open cuts filled with water, which became polluted

with acid and dissolved metals."

The commission says fish continue to be killed in parts of the Finniss every year by a concentrated "slug" of polluted water, washed downriver during the first rains of the tropical wet season.

The document says vegetation, particularly on the banks of the East Branch tributary of the Finniss, is damaged and says that in low-lying parts of the Finniss floodplains grasses have been found to contain high levels of copper, manganese and zinc.

The commission, which supervised the Rum Jungle operation between 1953 and 1971, says similar pollution to that occurring on the Finniss has occurred before in Australia on several occasions.

"Copper, gold, lead and zinc were mined from 1874 to 1962 at Captain's Flat, NSW, close to the source of the Molonglo River, which runs into the ACT," say the scientists. "The Molonglo provides water for Lake Burley Griffin."

"As the mine-dumps were eroded and exposed to air and water, poisonous chemicals (mainly zinc) entered the Molonglo River. The chemicals caused severe damage to pastures on floodplains downstream of Captain's Flat, and could be detected as far as Lake Burley Griffin itself, 50km from the mine."



WEST PILBARA WATER POLLUTED BY FUEL BUT DECLARED SAFE

Perth THE WEST AUSTRALIAN in English 1 Jan 82 p 3

[Article by Peter Trott]

[Text]

**PORT HEDLAND:** Water contaminated with diesel fuel from the west Pilbara water supply is safe for human consumption, according to tests completed yesterday by the Government Chemical Laboratories.

The Minister for Works, Mr Mensaros, said in a statement that an analysis of water samples taken from the service tank nearest the towns showed that the concentration of diesel fuel was 0.1 to 0.2 parts per million.

This was below the World Health Organisation level for such products and was not toxic to consumers.

However a local supermarket manager said that stocks of distilled water had almost run out and that most people were willing to stick to stronger drinks to avoid the un-

pleasant taste of the water.

The district engineer at Karratha for the Public Works Department, Mr Don Crawford, said that the fuel had leaked from a tank installed on one of the 12 bores at Millstream, 100km from Karratha. The bores supply water to the coastal towns of Dampier, Karratha and Wickham and the North-West shelf development at Burrup.

The contamination was first reported on Tuesday afternoon. Yesterday the source was discovered and the offending bore shut down.

Mr Crawford said that the bore had been supplying about 15 per cent of the draw.

The tank came second-hand from the Yule River borefield near Port Hedland. It had recently been installed and could have

been leaking since it was filled about three weeks ago.

The Roebourne shire health surveyor, Mr Mort Wignall, said that his telephone had been busy since Tuesday with people complaining about the smell and taste.

Until the analysis was made in Perth warnings were broadcast over local radio stations suggesting that pregnant and nursing mothers drink only distilled water or other beverages and that only distilled water be used for baby formulas.

Mr Crawford said that the supply tanks were being overflowed yesterday and the reticulation pipes flushed out, but it was not possible to say how long it would take to completely free the system of the tainted water.

CSO: 5000/7518

# RADIOACTIVITY IN PONDS, CRAB SHELLS CALLED NOT DANGEROUS

Perth THE WEST AUSTRALIAN in English 29 Dec 81 p 3

[Text]

**Radioactivity in effluent ponds at the Laporte plant near Bunbury and in the shells of crabs in the estuary is not a danger to health, according to the WA Radiological Council.**

An analysis found no radioactivity in crab flesh but a small amount in shells, it said.

The council has told the WA Government that radioactivity in effluent disposal ponds in sand dunes between the ocean and Leschenault Inlet is low in concentration.

It would not endanger health now or in the future.

The Minister for Health, Mr Young, released the council's findings yesterday.

He said that more tests would be done on crabs from the estuary and in other areas to establish the natural range of radioactivity present.

The council had considered a report by the Commonwealth Health Department's Australian radiation laboratory.

## Build-up

The council had sought the study after the company noticed a build-up of radioactivity in the plant in 1979.

Mr Young said that the company co-operated in the study, which was designed to find out the fate of small amounts of naturally occurring radioactive substances in the ilmenite feed used in making titanium dioxide.

Ilmenite was extracted from beach sands mined in the Bunbury and Capel area.

The sands contained a low concentration of uranium and thorium and their radioactive decay products.

The study had shown that nearly all the radioactivity entering the plant in the ilmenite feed left in liquid effluent pumped to disposal ponds.

A small amount of radioactivity that was not discharged in the effluent was concentrated on wood and cloth filter frames used in making titanium dioxide.

The council had recommended that these frames be incinerated and the ashes disposed of in the

liquid effluent.

Mr Young said that the radioactivity was of a type that would not be emitted in gases discharged from a correctly designed and operated incinerator.

Laporte's business group administration manager, Mr M. Derums, said that the company became aware in 1977 of low levels of radioactivity coming into the plant.

It had carried out a survey in conjunction with the State X-ray laboratory to ensure that plant procedures were safe and that there were no occupational health hazards for employees.

The study had been extended later because the fate of small amounts of radioactivity that came into the plant was not known.

The Australian radiation laboratory had sent representatives from Melbourne early this year to take samples. The report had been completed recently.

Mr Derums said that the wood filter frames were low in radioactivity.

For the past few years they had been stacked on the site. They would eventually be burnt and disposed of in the effluent.

LAWYERS GROUP CALLS GOVERNMENT STAND ON WOODCHIPS IRRESPONSIBLE

Melbourne THE AGE in English 22 Dec 81 p 3

[Article by Paul Robinson]

[Excerpts] The Law Institute's environmental law committee has accused the State Government of irresponsibility in moving to resist a study on the effects of wood-chipping in the Otways.

The secretary of the committee, Mr Kevin Zervos, said that if the State Government failed to order an environmental effects statement it would be acting outside the spirit of environmental legislation.

Mr Zervos said the Government would also be acting against proposals that were put to a conference in Canberra last month which was chaired by the Prime Minister, Mr Fraser, with the responsibility of preparing a national conservation strategy.

The Conservation Council of Victoria and the Victorian National Parks Association joined Mr Zervos in condemning moves by the Government to avoid an environmental survey.

State Government sources said last week that the Minister for Conservation, Mr Houghton, had failed to persuade the Government of the need for a survey at a meeting with the Premier, Mr Thompson, and the Ministers for Forests, Water Supply, Planning and Economic Development.

A section of the confidential draft Ministry for Conservation report, leaked to 'The Age', recommended that "before any final decision on pulpwood harvesting in the Otways, and its extent, is made, an environmental effects statement should be prepared under the provisions of the Environment Effects Act of 1978".

Mr Zervos said the State Government should consider setting up an independent tribunal to investigate the environmental effects of controversial developments. He said such a system would eliminate conflict between Government departments.

[Editor's note: According to THE AGE of 23 December, page 12, the government of Victoria "will not let new contracts for wood chipping in the Otways" until an environmental impact study has been completed. Victoria's premier "announced the government's intention to order an environmental study after reports that it was resisting such a move," the paper added.]

GOVERNMENT ADVISORY GROUP REJECTS PLAN FOR RISE IN LEAD LEVELS

Melbourne THE AGE in English 21 Dec 81 p 5

[Text]

The Federal Government's health advisory body has rejected a recommendation by the Australian Academy of Science to relax standards on lead levels in the environment.

In its report on health and environmental lead in Australia, released in September, the academy suggested Australia should adopt the present European standards for lead in air and lead in the blood.

According to these standards, the average annual level of lead in air should not exceed 2 micrograms per cubic metre, and blood lead levels should exceed 20 micrograms per 100 millilitres in no more than 50 per cent of the population screened, 30 micrograms in no more than 10 per cent and 35 micrograms in no more than 2 per cent.

The National Health and Medical Research Council which sets standards in Australia, has said that the air lead levels, averaged over three months, should not exceed 1.5 micrograms per cubic

metre, and that the average blood lead level should not be more than 15 micrograms, indicating that 90.5 per cent of the population will have levels below 30 micrograms.

The question of environmental lead is a controversial one because of claims that lead, even at levels within current standards, is harming children.

Partly because of this, State Governments have agreed to introduce lead-free petrol from mid-1985 — a move strongly opposed by the lead and oil industries.

While the academy's report recommended reducing lead in petrol as one way of reducing exposure to environmental lead to a "practicable minimum," its generally equivocal stance on the lead issue has led to its endorsement by the industries and its rejection by those campaigning against lead.

The lead industry had asked the council to review its standards in the light of the academy's recommendations.

CSO: 5000/7518

## BRIEFS

BEACH EROSION VICTORY--The Department of Agriculture is claiming victory in its six-year-long fight to save the Point Peron-Shoalwater Bay reserve from coastal dune erosion. The department's soil conservation service has transformed the dunes into a healthy and reasonably stable state. Marram grass and shrubs have taken hold on bare sand. Paths and fencing provide safe access to the beach. Before the service was called in during 1975, the 3km beach in front of the reserve was bare of vegetation. The first attempt to reshape the dunes and eliminate blow-outs at Point Peron failed under the pressure of constant foot traffic. In 1978 funds were allocated to the project by the Department of Youth, Sport and Recreation, which administers the point. Major earthworks, planting, brushing and fencing were carried out at Point Peron and a sand-trapping fence was built along the dune front to control sand drift. Similar techniques were used at Shoalwater Bay. [Perth THE WEST AUSTRALIAN in English 21 Dec 81 p 13]

PARKLAND PURCHASE--The Queensland Government has purchase a large tract of prime real estate 20km from the heart of the Gold Coast which will be turned into a national park. The land, 114ha of lush rainforest, is valued at several million dollars, but the National Parks and Wildlife Service has bought it with State funds for just \$200,000. The land will be incorporated into a larger crescent-shaped series of national parks known as the Scenic Rim, extending from Laidley, north of Brisbane, to Point Danger, south of the Gold Coast. It will be the most extensive area of protected fauna and flora adjacent to any major city in Australia. The Scenic Rim will make up more than 60,000ha. or 2 per cent of Queensland's national parks. [Excerpt] [Canberra THE WEEKEND AUSTRALIAN in English 26-27 Dec 81 p 3]

SYDNEY HAZE DANGER--Sydney's brown morning haze will probably get worse before it gets better and could be doing untold damage to citizens' lungs. A five-year joint study by the CSIRO's Division of Fossil Fuels and scientists from Macquarie University, has found that the haze can corrode aluminium and other metals over time and could have similar effects on lungs. It also found that the haze contained an average of 2 per cent, by weight, of lead, with greatest lead levels during peak hours. A report in the CSIRO magazine, ECOS, said: "Peaks in the concentration of lead observed during the morning rush hour could only be produced by leaded petrol from motor vehicle exhausts." Until now, the haze has not been positively linked with adverse effects on health. But Mr David Williams, who headed the study, said the damage caused to equipment "may say something about the possible effects on people's lungs and suggests the need for further investigation". The haze consists of fine particles and is distinct from photochemical

smog which is gaseous and known to be dangerous in high concentrations. Readings taken on the ground and in the air showed the haze was spread evenly over the whole metropolitan area, unlike photochemical smog, which is concentrated in the inner city. As well as its major elements of carbon and sea salt, the haze contained 2 per cent lead, 7 per cent chlorine and 12 per cent sulphate. Matraville, Silverwater and Balmain frequently had pockets of high haze levels. [Canberra THE AUSTRALIAN in English 31 Dec 81 p 3]

CSO: 5000/7519



## PRESIDENT OPENS CONGRESS ON SOIL SCIENCE

Calcutta THE STATESMAN in English 9 Feb 82 p 9

[Text] New Delhi, Feb. 8--The President today warned the international community of soil scientists of the "frighteningly rapid rate" by which soil degradation was taking place and eating "into our production base even as the demands are growing on account of rising populations."

Mr N. Sanjiva Reddy, who was inaugurating the 12th International Congress on Soil Science, pointed out that owing to "our preoccupation with affairs of more immediate interest," the people the world over had not been able to pay attention to soil degradation. The damage to which the soil resources which continues even now, had taken place as a result of a combination of several factors, among which the increasing pressure on land exerted by growing populations, was one.

Depletion of forest areas for agricultural use had been going on for years. A lot of damage to forests could also be attributed to their accelerated exploitation, which had become possible as a result of better road communications in hitherto inaccessible hilly areas, Virgin forests, well nigh impossible to replace, had disappeared. Although it was perhaps only a small step, it was heartening that in India local populations in the Himalayas had begun to organize peaceful protests against the felling of trees through the "chipko" movement started by Mr Sunder Lal Bahaguna. "I am glad it is yielding some results," Mr Reddy said.

Referring to the Deccan Plateau, which was known to be one of the oldest areas geologically, the President said that it now presented a dreary appearance. As one travelled around the area, only bare hills and bald rocks were seen. There were no trees whatsoever and the soil cover had completely disappeared, thanks to the depredations of man. No vegetation could grow on these hills any more. In some parts in the plains, too, good top soil had been washed away, leaving only an emaciated tract. The crop yield in such areas was naturally low, the President explained.

He said that irrigation and hydro-electrical potential created at great cost to the country was being lost by the rapid silting of reservoirs. The silting of river beds had enlarged the area of land susceptible to floods from about 25 million hectares to about 40 million hectares in about 20 years. Loss to property

caused by floods ran into several hundred crores of rupees a year. A tremendous volume of water was also lost to the sea which would otherwise have remained as ground water, a precious resource.

Good agricultural land, particularly land which was multicropped, ran the risk of deteriorating in quality, as a result of repeated application of large doses of chemical fertilizers and pesticides. Farmers had to be helped in the judicious use of chemical fertilizers, in combination with organic fertilizers so that no damage might be done to the soil in an attempt to reap quick benefits. For this purpose, soil testing facilities and expert guidance should be within easy reach of farmers so that the right quantity and combination of fertilizers might be used for crops with due regard to the local irrigation facilities, Mr Reddy said.

The Minister for Agriculture, Mr Rao Birendra Singh, had in his speech said that the estimated food production for 1981-82 would be about 136 million tons. India would have around a billion people to feed by the turn of the century. The food requirement was estimated at 225 million tons then. Therefore, India's agricultural programmes for the next two decades were aimed at meeting the immediate as well as long-term needs.

Considering that nearly 175 million hectares--53% of the geographical area of the country--was in need of land and water conservation treatment, the present pace of development needed to be accelerated. So far, India had been able to treat only 13% of its problem soil. With this in view, the total Sixth Plan outlay had been fixed at Rs 640 crores which matched the investment during the past 25 years, the Minister explained.

The preparation of inventory of land resources was a prerequisite for planned agricultural development, the Minister said. To achieve this goal, the Nagpur-based National Bureau of Soil Survey and Land Use Planning, and the All-India Soil and Land Use Survey Organization, as well as similar organizations in the States, had surveyed about 33% of the area in the country. The Prime Minister had suggested a small team to examine the question of setting up a National Land Use Commission which would keep a continuous watch on the problems of land resources and their management in the country. State Land Use Boards have already been set up in 26 States/Union Territories.

Mr J.S. Kanar, president of the International Society of Soil Science listed the challenges to soil scientists in the decades ahead and said that before it was too late, there should be a slogan: "Save the Soil."

CSO: 5000/7041



## KERALA'S CHALIYAR RIVER ENDANGERED BY EFFLUENTS

Bombay THE TIMES OF INDIA in English 29 Jan 82 p 7

[Article by K.C. John]

[Text]

TRIVANDRUM, January 28.

**T**HE people of Kozhikode district, in Kerala, have been fighting without success to preserve the purity of the Chaliyar river which is being polluted by a pulp plant set up at Mavoor by Gwalior Rayons, a Birla enterprise.

The discharge of effluents from the plant into the river has all but wiped out all living species in the river.

The river is facing danger despite persistent efforts by the authorities to prevent its pollution. The Kerala state board for prevention and control of water pollution appears to be helpless against what it calls the "intransigent attitude" of the company. The fight is now escalating because the board says Gwalior Rayons has not implemented the directives issued by it from time to time to prevent pollution. The board's first attempt to prosecute the company, however, was not a complete success, for the additional judicial first class magistrate, while directing the company not to use the unauthorised outlet, also gave it permission to use it "in case of extreme urgency".

According to the board, the conditional directive could be misused by the company to defeat the purpose of controlling pollution. The board is going in appeal against the court order.

Pending the appeal, the chairman of the board, Mr. K. K. Kamath, has ordered the company to close the unauthorised outlet and taken other steps to prosecute the company for letting out "poisonous matter into the Chaliyar river".

## EARLIER EFFORTS

It is alleged that the company has not cared to use the existing facilities for treating the effluents before they are discharged into the river. The people and the government appear to be on the defensive against the power of the company in the two-decade-old dispute.

The first attempt to control pollution was made in 1968 when the state government constituted an expert committee with the chief engineer of the public health engineering department as chairman but the company did not care to fully implement its recommendations.

In 1974, the local people obstructed the construction of a bund across the river and the then home minister, after a conference with the people's representatives and the company management, imposed some restrictions on the flow of effluents. The state board for prevention and control of pollution directed the company to treat the effluents to a safe level prescribed by the board. According to the board, the company again failed to fully implement the directives.

Three years later, after ignoring several directives, the company agreed to lay a pipeline to discharge the treated effluents but when the pipeline was commissioned, it was found leaking. The board had to direct the company to plug the leakages.

Meanwhile, the company invited offers to augment its effluent treatment facilities under pressure from the board. One consultant came forward with a plan but that was not implemented.

## AIR POLLUTION IN CITIES EXCEEDS WHO STANDARDS

Bombay THE TIMES OF INDIA in English 8 Feb 82 p 6

[Text]

NEW DELHI, February 7 (UND): Air pollution in all metropolisation cities of India, far exceeds the 150 mg per metre cube standard laid down by the World Health Organization, delegates attending the annual conference on "air pollution '82" have revealed.

Prof. J. M. Dave, Dean, school of environmental sciences, Jawaharlal Nehru University, said Delhi, Bombay, Calcutta and Ahmedabad showed 300, 350, 560 and 250 mg per metre cube of particulates in the air. This was caused by vehicles, smoke emission from earthen heaters and the coal-consuming industries.

A study conducted by Prof. Dave talks about the harmful effects of polluted air on children from manganese and power plants in Nagpur. It was found that the lung capacity of those in the 8-10 age group was reduced by 20 per cent. Likewise, the rate of respiration had shot up by 160 per cent.

The expert feels that this situation was "alarming."

## 'GAS CHAMBER'

Mr. V. B. Shirodkar, of the air pollution cell of Greater Bombay municipal corporation, argues that effective pollution control measures can bring about a metamorphic change. Chembur, which once was considered a "gas chamber," now breathes clean air.

He said emission of sulphur di-oxide had been drastically reduced from 210 tonnes to 110 tonnes at Chembur. Measures such as low sulphur fuel, dust control and use of new technology for nitric acid plants has helped achieve this.

Prof. Dave also gave the example of a Pelletisation plant at Mandoi in Goa where more than 99 per cent of air pollution has been reduced through pollution control measures.

Meanwhile, many other delegates felt that air pollution in India was a socio-economic problem and measures being adopted by the West might not be suitable for "our country."

CSO: 5000/7040

## ENVIRONMENTALISTS THREATEN NEW COURT ACTION ON SMELTER

Wellington THE EVENING POST in English 1 Feb 82 p 10

[Text]

**AUCKLAND, January 31, (PA).** — South Pacific Aluminium may withdraw its application under the National Development Act for the planned Aramoana smelter and make a fresh application once its new third partner is announced.

The company says it may have to take that course of action to avoid further delays following receipt of a threat from the Environmental Defence Society to take the smelter proposal to court for a third time.

A letter from the society to South Pacific Aluminium on Friday said further legal action was likely because of changes to the smelter project since the National Development Act application was lodged last year.

Last year, the society joined other groups in what turned out to be unsuccessful court action to prevent the use of the "fast track" act for the smelter project.

The general manager of South Pacific Aluminium, Mr J G Smith, said that the society's letter was being taken very seriously and the company would seek legal advice on the arguments raised by the society.

"It is unlikely we would do anything until we confer with our new partner, but

further court action would be costly in money and time and it may be in the interest of speed to reapply under the act."

South Pacific Aluminium is the consortium formed to build and own the planned aluminium smelter at Aramoana, near Dunedin. Its shareholders are Fletcher Challenge Ltd (50 percent) and CSR Ltd of Australia (25 percent).

The company has been seeking a new third partner to replace Alusuisse, the Swiss firm which was to have provided the smelting technology but which pulled out of the project last October.

Fletcher Challenge said last week that a new partner would be announced by mid-February, and meanwhile the Planning Tribunal would be asked to postpone the National Development Act hearings on the project from March 9 until April so the consortium's submissions could take account of the new partner's technology.

## Changes

The key points in the Environmental Defence Society letter to the company relate to the changed nature of the project's technology caused by the withdrawal of Alusuisse.

"It is our opinion that the environmental impact report and audit are vitally important to the tribunal inquiry and must relate accurately to the proposal. It is too late to start deleting or adding," the letter says.

(The environmental impact report on the project, required under the National Development Act, was prepared last year before Alusuisse withdrew.)

"We believe that your company ought not to proceed with its application because the environmental impact report and audit are now to an extent — and that is all that is required — not relevant to the revised proposal."

As well, the society says, the National Development Act requires prompt con-

sideration of proposals, and does not contain provisions to place an application in limbo to suit the convenience of the applicant.

The letter says South Pacific Aluminium should withdraw its National Development Act application and reapply when its contractual and technological options are settled.

South Pacific Aluminium has argued that the changes to the project following Alusuisse's withdrawal will be relatively minor.

Mr Smith said that the act was pretty inflexible, and legal arguments could revolve around what people thought was meant by the term significant changes.

The Minister of Energy, Mr Birch, said he knew the company had been considering whether to lodge a fresh application under the National Development Act.

Mr Birch said the speeded planning provisions of the National Development Act were the obvious choice for the smelter, and he had no thought of planning any special legislation to assist the project.

BRIEFS

ENVIRONMENTALISTS ABANDON GAS PROJECT FIGHT--The Environment and Conservation Organisations of New Zealand (ECO) has decided not to appeal against the Planning Tribunal judgment which gave planning approval for construction of the Mobil synthetic petrol plant at Motunui in Taranaki. ECO's research officer, Mr Simon Terry, said today ECO would like to have challenged the ruling but felt an expensive legal battle was not the best means of pursuing public evaluation of gas projects and their alternatives. ECO had campaigned for direct use of Maui gas as CNG rather than what he called "wasteful" conversion to synthetic petrol. His organisation fully supported appeals against the tribunal's decision by the Ngatirahiri Hapu and the North Taranaki Environment Protection Association. "It hopes that this action will focus attention on both concerns of the people of Taranaki and the wider planning process," Mr Terry said. [Text] [Wellington THE EVENING POST in English 26 Jan 82 p 17]

CSO: 5000/9062

## DESTRUCTION OF ASIAN FORESTS DECRIED

Islamabad THE MUSLIM in English 17 F-b 82 p 5

[Article by Manolo B. Jara]

[Text]

MANILA: Destruction of Asia's forests continues at an alarming pace, averaging 1.8 million hectares a year or 5,000 hectares a day. Frantic governments have instituted measures to arrest the rapid decline but, so far, success has been "very limited".

This is the grim assessment of the United Nations Food and Agriculture Organisation (FAO) in the first-ever comprehensive survey of Asia's forest resources. FAO conducted the survey in collaboration with the United Nations Environment Programme.

Deforestation is heaviest in Southeast Asia which produces some of the world's most valuable rare million hectares. This figure is expected to level off in the next five years to 1.82 million hectares per year.

But even at this rate, Asia's "virgin" forests will be reduced to 270 million hectares by the year 2000, warns the report. The region's average annual rate of deforestation of closed forests is 0.60 per cent.

Over the next five years (1981-85), the deforestation rate is projected to increase in Sri Lanka, Indonesia, Malaysia and Kampuchea. A decrease is predicted in Thailand, Philippines, Brunei and Laos. In other countries, it will either be stationary or increasing very slightly, says the report.

Because of the unabated destruction of their forest resources some countries are already feeling

have a high population density and where shifting cultivation has not been effectively stopped.

Population pressure on Asia's existing forest resources is undeniable. "Unorganised and spontaneous encroachments, squatting, migration by lowlanders - all manifestations of increasing demand for cultivable land by landless and unemployed rural poor - are already accounting for considerable deforestation", warns the report.

This form of deforestation is most prevalent in the Philippines where almost all the culprits are landless tenants, farm labourers or just plain land speculators. In Nepal, the population pressure on the hills has caused people to migrate to the *terai* (plains) and encroach into forest land. Over in timber. According to the report, Indonesia's annual deforestation rate of 500,000 hectares is the highest in the region. Second in Thailand with 333,000 hectares; the range is between 100,000 and 250,000 hectares for Malaysia, India, Laos, Philippines and Burma.

These countries were among the Asian and Pacific nations covered by the survey. The others are Bangladesh, Bhutan, Brunei, Kampuchea, Nepal, Pakistan, Papua New Guinea, Sri Lanka and Vietnam.

The ravaging is felt most by Asia's closed or "virgin" forests which, as of 1980, totalled 306 million hectares. The survey says that in 1976-80, the total closed forest area ravaged was more than

the pinch. Thailand is a case in point. To keep its sawmill industry rolling, the country has become increasingly dependent on log imports.

"From a net exporter, with depletion of forest resources, ban on exports and growing domestic demand, Thailand has emerged as a net importer during 1977-79", the report says. "Sizeable imports of logs first started in 1977 (61,000 cubic metres) and gradually increased to 204,000 cubic metres by 1979. The importation is mainly from Malaysia".

Unlike before, loggers are no longer mainly to blame for the rapid destruction of forests. The report notes that forests resources are ravaged faster in areas which Thailand, unrest in neighbouring countries has let loose a flood of refugees, contributing heavily to deforestation.

Slash-and-burn agriculture or shifting cultivation also wreaks havoc on Asia's forest resources. The practice is variously known throughout the region as *kaingin*, *bum*, *chena* or *podu*. Available figures indicate that 28 million Asians depend on shifting cultivation for their livelihood. The extent of forest area affected covers about 74 million hectares.

Example abound: in Bangladesh *buming* is practised by 13 tribes living in the Chittagong Hill Tracts region, involving 350,000 people.

The overall affects, says the report, are loss of timber estimated at 560,000 cubic metres, annual soil loss of some 84 million tons and a serious decline in the capacity

**TABLE 1**  
ANNUAL PRODUCTION AND EXPORTS OF SAWLOGS AND VENEERLOGS  
SOUTH ASIA<sup>1/</sup>  
(in thousand m<sup>3</sup>)

Country	Period	1968-70	1971-73	1974-76	1977-79
Bangladesh	Production	918	539	717	574
	Exports				
India	Production	4845	5207	5866	7068
	Exports	23 (0.5%)	30 (0.6%)	32 (0.6%)	28 (0.4%)
Nepal	Production	549	558	540*	540*
	Exports	118 (21%)	126 (23%)	126* (23%)	126* (23%)
Pakistan	Production	87	78	87	131
	Exports				
Sri Lanka	Production	97	88	85	103
	Exports				
South Asia	Production	6496	6524	7295	8416
	Exports	141 (2%)	156 (2%)	158 (2%)	154 (2%)

1/ The figure in brackets against exports represents the proportion of log production exported.  
Source: Forest Resources of Tropical Asia.

Table 2  
ANNUAL PRODUCTION AND EXPORTS OF SAWLOGS AND VENEERLOGS  
INSULAR SOUTHEAST ASIA  
(in thousand m<sup>3</sup>)

Country	Period	1968-70	1971-73	1974-76	1977-79
Brunei	Production	89	87	115	134
	Exports				
Indonesia	Production	7733	18908	20929	25993
	Exports	4284 (55%)	14255 (75%)	15700 (75%)	19056 (73%)
Malaysia	Production	17274	20923	24042	30186
	Exports	10993 (64%)	11873 (57%)	12818 (53%)	16299 (54%)
Philippines	Production	11090	9684	8140	7207
	Exports	9273 (84%)	7687 (79%)	3873 (48%)	1832 (25%)
Insular S.E. Asia	Production	36186	49226	53226	63520
	Exports	25550 (68%)	33785 (68%)	32391 (61%)	37187 (59%)

1/ The figure in brackets against exports represents the proportion of log production exported.  
Source: Forest resources of Tropical Asia.

of land to produce agricultural crops.

In India, shifting cultivation is practised in 12 states; some 2.7 million people are involved and the annual area affected is close to one million hectares. The northeastern states of Arunachal Pradesh, Assam, Nagaland, Manipur, Mizoram, Tripura and Meghalaya account for 66 per cent of India's shifting cultivation population.

Shifting cultivation is also practised widely by an estimated 12 million Indonesians. However, it is confined to the islands of Kalimantan, Sumatra, Sulawesi, Maluku and Nusa Tenggara. Over 16 million hectares of forest land have been adversely affected from the viewpoint of soil fertility and soil cover.

As Asia's population increases, so does the demand for timber and fuelwood. And this, in no small measure, contributes to the destruction of forest resources. Estimates are that almost half of all wood cut worldwide each year is used as fuel. Over four-fifths of this are used by the Third World poor - a situation which has been exacerbated by the oil price increase.

"Nepal provides a typical example of the most disturbing aspects of the problem of degradation due to excessive fuelwood and fodder harvesting", the report says. "This process is leading to severe soil erosion and many places once covered by forest have been reduced to near wasteland. Devastating landslides and ecological disaster not only for Nepal but also for land downstream is a notice-

able phenomenon".

Logging operations also contribute heavily to forest destruction particularly in Southeast Asia, to meet the increasing need for timber worldwide. In fact, Indonesia is projected to emerge as the most important log producer and exporter in Asia and in the whole tropical world.

According to the survey, Indonesia's share in Southeast Asia's log production rose in the last decade from 21 per cent to 48 per cent; exports also rose from 17 per cent to 51 per cent during the same period.

The report admits that tropical forest are a major foreign exchange earner, especially in a country strapped for development funds. In 1979, for instance, Indonesia, Malaysia and the Philippines earned a total of \$2.3 billion from log exports, broken down into: Indonesia, \$1.5 billion; Malaysia, \$690 million; and the Philippines, \$140 million.

But is it worth it?

No, says the report, "because the full amount of export value cannot be viewed as representing a benefit to the exporting country. Since much of the (forest) exploitation is carried out through foreign-based transnational corporations, the net foreign exchange earnings to the country, in effect, will be residual after deducting from the gross earnings such items as: profit repatriation, imports and equipment and material, and expenditure towards employing expatriates in the operations". - *Dephnews*



## INDIAN OCEAN POLLUTION DESCRIBED

Islamabad THE MUSLIM in English 17 Feb 82 p 5

[Article by Prakash Chandra]

[Text]

**NEW DELHI** : At one time, the Indian Ocean was considered to be the least polluted among all the oceans of the world. Not anymore.

A study of the west coast of India made by the National Institute of Oceanography at Goa has found that "pollution has already crossed the threshold point". Along the Madras coast, for example, a large number of canals and rivers enter the sea carrying sewage and other wastes from power stations, fertilizer factories, oil refineries, tanning and textile industries.

The entrance to Madras harbour and adjoining areas alone are constantly threatened with oil spills, marine diesel oil, light crude oil, fuel oil and light naphtha.

When petroleum leaks from a passing ship, for instance, an oily "film" coats the sea surface, suffocating life there. So much so that a study has found the area offshore Madras harbour to have a "very low" microscopic plant and animal life. Scientists also have noticed that rocks and boulders coated with oil spills were devoid of any marine life.

India recently stepped up its search for oil in the Bombay offshore areas, at the same time that experts are saying that ships carrying petroleum and other heavy oils are a serious threat to marine pollution. Says Dr Arthur Daniel of a Madras-based marine biological station: "The situation requires immediate research because of the recent intensification of oil exploration besides the increasing volume of oil tanker traffic". Experts feel a balance must be struck somewhere between environmental

requirements and the need for raising oil resources.

The sea is also threatened from the shores. Wastes from houses, hospitals and industries in the coastal waters around Bombay, Madras and Calcutta harbour areas alone are estimated to be 150 million tons each year. About 1.3 million tons of effluents from pesticides in farms and detergents in houses reach the sea each year.

One researcher estimates that 25 per cent of these chemicals pollute the seas. Recent studies have also found fish caught around the Bombay harbour to have a mercury content above the permissible level.

Experts feel that the increasing tempo of industrialisation as well as the growth of coastal populations will raise serious problems in waste disposal. Their effects on coastal waters are considerable.

The Goa Institute has already noted that one of the heaviest sources of coastal pollution comes from thermal power stations. And the Government plans to put up a chain of power plants along the coastline to meet mounting demands for electricity to feed that growing number of industries.

Power stations look attractive along coastlines, with the easy availability of sea water needed for their cooling systems. But sea water released from condenser tubes of power plants is so hot that the increased water temperature affects many organisms, even killing fish. Power plants also release chromium compounds and fly ash which pollute marine life.

Understandably, Indian authorities are worried, and research has been hurried lately. Some tests have already been made off Bombay to study the movement of an oil slick. The efficiency of

several devices for removing oil spills will be tested, including the toxicity of some chemical dispersants used. Research has also been done on the effects of oil spills on organisms in the harbour areas off the Madras coast.

The hazards of marine pollution due to oil spills have only been recently recognised because of major accidents in the West. The heart of the problem facing the Third World concerns modern technology required to fight back the degree of marine pollution today.

Dr. Dilip Kumar Biswas, secretary of the Board of Environment, suggests one way of cleaning oil tankers through the so-called "load to top" technique. Oil tankers usually flush out their leftover oil to the sea when they are cleaned with water for another loading.

The "load to top" technique discharges dirty ballast from tank washing into a special tank on board. Oil is "floated" in special tanks on top and then water is drained from the bottom of the tank until a thin layer is left with the oil residues. Fresh crude oil is then loaded on top of this as well as into the other tankers.

The process eliminates discharge of water containing significant quantities of leftover oil.

He says about six to 11 million tons of oil are spilled into the world's oceans annually. These consist of washings from oil tanker, barge pumping, tanker spill, offshore drilling, sewage and industrial wastes. Dr. Biswas has recommended to the Government that research and development of techniques for containment, clean up and recovery of oil spill should be developed.



Dr. Biswas said that the Government should take legal action to prevent oil spills within Indian waters.

"Actually, Third World countries must issue mandatory regulations for oil cargo carriers to use modern (anti-pollution) technology", he says. "This requires a wide network of inspection facilities to check the violations".

A network of monitoring facilities is also needed to combat oil spills in major ports and harbours. A contingency plan for oil spills must also be formulated.

Capt. Verghese Kuruvilla, harbour master of the Cochin Port Trust in South India, feels that U.S. laws on marine pollution should be studied. The U.S. Water Quality Improvement Act prohibits discharges of oil within 12 miles offshore. It imposes a clean-up liability of US\$100 per gross ton on the guilty vessel, or \$14 million, whichever is less. Deliberate violators are subject to a fine of \$10,000 for each offence, plus the cost of cleaning up the spill.

South Africans are even stricter. They reserve the right to destroy and sink a grounded tanker threatening their coastline with oil pollution.

CSO: 5000/5672

## STRONG NEED FOR POLLUTION CONTROL SEEN

Karachi DAWN in English 14 Feb 82 p 9

[Editorial: "Environmental Studies"]

[Text]

A DECISION has been taken to set up a full-fledged institute for environmental studies. The recommendation was made by 14 sub-committees which had been constituted by KDA's Master Plan and Environmental Control Department many months back to study various aspects of the pollution problem. The executive committee of the Environmental Protection Committee, whose chairman is the Vice-chancellor of Karachi University, took the final decision to go ahead with the institute. Since the executive committee represents cooperation between the University and KDA, it is to be expected that progress towards setting up the institute will be rapid, and that the present decision will not meet the fate of the previous one. A similar decision had been taken by the committee at a meeting also attended by representatives of the Karachi University in 1980 but nothing came of it. Now that the committee has again decided to establish the institute, endorsed by the Vice-chancellor, it is to be hoped that results will be forthcoming.

Any such institute will be playing a crucially important role in the country, and it

should be stressed that protecting the environment is not simply a Western fad, or a luxury we can do without. Deteriorating environmental conditions have a definite economic aspect and many of these conditions are increasingly evident in this country. Health, for instance, is affected not only by water which has been contaminated by industrial waste, but also by the high level of atmospheric pollution in cities and around industrial areas. Just last month a study conducted along part of Bunder Road showed that the volume of smoke on one stretch was among the highest known anywhere. The effect on health can well be imagined, and the consequent economic cost of illness. Similarly, the siting of industrial projects, especially those which create heavy pollution either in the form of smoke or wastes discharged into rivers needs to be examined. One cannot but doubt the efficacy of our laws in this regard and it is quite possible that some industrial wastes which are discharged untreated into the air or in waters contain toxic substances because there is no law to

prevent it. There are numerous other ways in which environmental problems affect the economy, the impact of pollution on commercial fishing and the costs of rapidly diminishing woodlands being two common examples.

One of the main problems encountered when trying to protect the environment is lack of scientific information. It is obvious that unless it is known precisely where a problem lies, and how serious its effects are, a beginning cannot be made towards tackling it. This is where an institute of the sort now being contemplated becomes invaluable. Until more specialised facilities are set up the main purpose of this institute should be to identify areas where environmental problems exist - throughout Pakistan - and to suggest ways in which they can be removed. Teaching is, of course, important but students should be given a thorough grounding in Pakistan's environmental problems, and not merely made familiar with general principles. There is, of course, another major hurdle to overcome before evidence of the institute's work is visible. The

Government has shown itself to be curiously reluctant to enforce rules to prevent pollution or protect the environment in other ways, even after repeated suggestions which refer to particular problems. In the case of atmospheric pollution, for instance, it should not have been too difficult - or expensive - a proposition to make a beginning with vehicles. A simple way is to require vehicles imported into the country to meet certain prescribed pollution levels, and many countries have such rules in force. To deal with older vehicles it would have been far more effective to get instruments to measure noise or smoke levels, rather than making periodic half-hearted appeals to owners to control smoke or noise. This lack of action on the part of the concerned authorities is difficult to understand, specially since seminars on the environment are held periodically, and top-level administrators show a great concern on paper and in speeches. In fact, it should be the first task of the proposed institute to examine this problem closely and work out measures necessary to control it.

## OVEREXPLOITATION THREATENS TIMBER RESERVES

Quito EL COMERCIO in Spanish 21 Ja 82 p A-6

[Text] The National Development Council (CONADE) asserts that the country's timber reserves total 55 million cubic meters, but this volume does not offer an encouraging outlook because of the irrational exploitation registered in the past few years.

The CONADE states in a study that 54 percent of the area of Ecuador is covered with forests. However, the current rate of exploitation will create a dearth of the major commercial species before too long because the forestation and reforestation activities have not been enough to restore the resource that is being exploited, with the aggravating circumstance that the best system to manage humid tropical forests to produce a sustained yield is not known.

Moreover, it says, the lack of reliable information concerning the volume of the timber resources of the country should be noted. It is estimated that 2.5 million cubic meters of raw material was extracted in 1978, a rather large figure considering that the reserves are calculated at somewhat more than 55 million cubic meters, the CONADE explains.

The study reveals various problems that stem from forest exploitation. This state of affairs, it asserts, derives from the serious ecological threat posed by the indiscriminate cutting down of forests, a situation that produces annual losses of up to 60 percent of the felled timber.

On the other hand, the lack of an infrastructure for the exploratory phase and the technical deficiencies in sawing produce a loss of approximately 40 percent of the felled and processed timber.

With respect to the manufacture of furniture and other wood products, the CONADE says that there exist problems which can be easily solved, among which stand out the lack of a sufficiently concentrated and specialized small- and medium-sized industry provided with standards of quality. It is also important to underscore, according to the study, the lack of new techniques of design and functionalism in the manufacture of wood products, as well as of strict quality control and standardization that will be complemented by studies on the use of the national wood species.

The CONADE recommends in this document that the country, through the Ministry of Agriculture, intensify the forestation and reforestation plans at the national level, guiding the proper use of the land in the colonization areas and implementing the

technical zoning procedure of the government. At the same time, it adds, the genetic material for forestation and reforestation with commercial species should be produced in the national nurseries. Also, the effectuation of the forest inventory via the appropriate organizations is becoming urgent. With regard to credit, the study concludes, it is necessary to offer facilities, particularly in long-term loans, with adequate periods of grace and low interest rates in order to increase the attraction of the forestry sector.

8414

CSO: 5000/2064

# OFFICIAL DESCRIBES IMPURITY OF NATION'S WATER

Mexico City EXCELSIOR in Spanish 31 Jan 82 pp 1A, 21A, 27A

[Article by Mario Ruiz Redondo]

[Text] The waters of the nation are contaminated by 90,000 industrial and municipal sources of waste. Of the 21 planned control centers for the most endangered areas, only one has been completed and a second is barely under construction, according to a statement made yesterday by the Director of Water Purification of the Undersecretariat of Improvement of the Environment [SMA] of the Secretariat of Health and Welfare [SSA] Miguel Angel Garcia Lara.

As to the importance of the problem and the means the state has to counteract it, he said, "The number of inspectors is insufficient. Between the Secretariat of Agriculture and Hydraulic Resources and the SMA there are barely 250 technicians who during just this year will have to investigate 3,000 enterprises causing pollution."

He added that up to now neither the government nor private enterprise has been sufficiently aware of the pollution of rivers, lakes and shores. It is because of negligence that the need to preserve the ecology has been ignored.

He said that the concern that is now being felt results from the fact that we need an ever increasing amount of water for human consumption and it is because of this that we have become aware that we are polluting it. The flora and fauna of the water basins are also affected by contamination.

He acknowledged that there are private enterprises that are "criminally discharging highly toxic chemical substances, which endanger health, into the rivers. Last Thursday we closed down the Quimica Central enterprise in San Francisco del Rincon, Guanajuato. It produced dichromate of soda. Its residual discharges have a high level of chromate which contaminated the water at certain levels."

Pigmentos y Productos Quimicos of Altamira, Tamaulipas, a plant which produces titanium oxide, is under investigation. With the authorization of the SMA it discharges its residues into the oceans 1,500 meters out. This situation is being investigated because the contamination of the ocean may produce serious effects over a period of years.

Garcia Lara also reported that a mining enterprise in Nayarit State has been placed under government control. Its operations have been stopped because the recommended antipollution systems have not been installed. There is danger that it will contaminate the water supply of the town of Tuxpan.

He reported that at the request of the SMA the federal government is already taking action to bring about the installations of equipment which will control and prevent the pollution of water. This is true of Petroleos Mexicanos, [PEMEX], the enterprise which has displayed the greatest interest.

He said that PEMEX is taking steps so as not to contaminate water with its residues. It is able to do so because of its great financial strength. "This must be stressed since not all government enterprises have budgets which permit the construction of water purification plants."

He said, "People must realize that the government is setting an example so that industrialists cannot argue that this is required of them alone."

He said that the industries which pollute the most with their wastes are the petroleum, the petrochemical, the chemical, the paper, the mining and the sugar industries.

As an example he cited the sugar industry as being economically unable to comply with SMA requirements due to the problems faced by the National Sugar Industry Commission.

"The old sugar mills like Tres Valles, San Cristobal and San Miguelito, which have been taken over, cause serious pollution problems in rivers. The organic material discharged into the rivers amounts to several hundred thousand tons during the harvest season. There is no control system.

"We, as authorities, are not interested in the fact that the sugar mills formerly belonged to private enterprises and that the ecological problem was not taken into account. At the present time most of them belong to the state and it is the state who, as owner, should be responsible."

#### Impossible To Regulate by Decree

Garcia Lara said that in general the overall solution of the problem, both for private industry and the government, should be worked out in a reasonable way. There is an obligation to carry out projects to fight water pollution by means of purification plants but this cannot be accomplished by decree.

At present there are agreements with the semi-governmental industries. Let us begin at home. There are agreements with PEMEX, the Federal Electricity Commission, the National Sugar Industry, Mexican Fish Products and Northwest Fisheries.

Garcia Lara explained the procedure to be followed in setting up water purification plants for sewage water.



"It takes a year to complete the drawing up of the plan if it is handled on an urgent basis. To carry it out--that is, to have the plants ready to go into operation--requires another 3 or 4 years in the case of a refinery of the PEMEX type."

He said that the delay is due to the slowness of the supply of equipment. The foreign builders of the plants, in view of the growing world demand, take between 1 and a half to 2 years to deliver them. In the past, the usual period was 6 months. A water purification plant for a refinery costs 500 million pesos.

He pointed out that the SMA is aware of this situation; hence the installation of a plant cannot be required within months because that is impossible. He acknowledged, however, that not all the industrialists have agreed to expedite the steps for the installation of antipollution systems. They cite economic reasons.

9204

CSO: 5000/2065



## BRIEFS

U.S. CAUSED LEAD POISONING--Ciudad Juarez, Chihuahua, 30 January--Due to the contamination of the environment by ASARCO, metal processors of El Paso, Texas, about 12,000 minors living in developments near the city have excessive amounts of lead in their blood. Deputy Director of Environmental Control of the Secretariat of Health and Welfare (SSA) Blanca Raquel Ordonez pointed out that the harm to the inhabitants of the developments of Galeana, Francisco Villa, Felipe Angeles and Division del Norte is serious due to the emanation of toxic gases which do damage to the blood, especially in children, on whom tests are continually being made to verify the degree of seriousness of the damage. Elvira Ochoa de Ontiveros, of the Felipe Angeles development said she is filing suit for US \$1 million against the American foundry because her daughter Elvira Ontiveros Ochoa died as a result of the contamination produced by ASARCO. Leaders of the developments and members of the leftist political parties said they will request the Government of Mexico to intervene since the foundry has been authorized by the American Government to continue discharging toxic gases into the atmosphere. [Mexico City EXCELSIOR in Spanish 31 Jan 82 p 2-D] 9204

RISE IN CHINAMPAS CONTAMINATION--The biochemist, Dolores Tirado de Nova, a researcher at the National Polytechnic Institute [IPN] declared yesterday that the danger exists that the truck farms of Xochimilco will disappear due to water contamination problems. According to studies of IPN, the contamination of the Xochimilco canal has increased greatly in boron, lead and cadmium. In this way, contamination has perceptibly affected the area's agriculture. Dolores Tirado, head of the soil and plant laboratory of the National School of Biological Sciences of the IPN, determined that at present 200 hectares are worked instead of 800 hectares which were cultivated in previous years. "The problem lies principally in that on trying to make the irrigation canals level, with dirty water, it has damaged the ecological life of Xochimilco." [Text] [Mexico City EL SOL DE MEXICO in Spanish 2 Feb 82 p 9-A] 9678

CSO: 5000/2063

## WATER SUPPLY INCREASE PLANNED

London 8 DAYS in English No 6, 13 Feb 82 pp 20-21

[Article by Howard Schissel]

[Text]

THE MOROCCAN government is pushing ahead with plans to bring the country's water resources under control. It is promoting agricultural irrigation in particular, though abundant winter rains have alleviated the effects of two consecutive years of drought.

During the 1981-1985 Five Year Plan period, roughly Moroccan dirhams 4bn (\$750m) will be spent on gaining control over water resources. Of this, 84 per cent will be spent on constructing dams and improving irrigation facilities, thereby creating a number of business opportunities. Work on 13 new dams is to be started this year.

Morocco has the potential to conserve and use 21bn cubic metres of water, but most of this is still lost through running off or evaporating. The country's 30 dams are only capable of husbanding around 7.5bn cu m of water, which has to irrigate 500,000 hectares of land, as well as supply drinking water to the expanding urban areas and water for industrial use.

The minister of planning, Mohammed Douiri, has said officially that the goal is to double the amount of land under irrigation to 1m hectares by the end of the century. The improvement of the water distribution system alone could mean a 25 per cent increase in irrigated land.

In the 1978-1980 plan period, only six of the nine dams under construction were completed. Government officials hope to bring the Sidi Dris, Tamzaourt and the auxiliary Idriss I dams onstream this year.

The principal dams in the 1981-1985 plan include:

- An auxiliary Safi dam to provide additional water resources for the Maroc-

phosphore I and II plants as well as to irrigate the Doukkala plain. This will cost Mdir 50m (\$9.4m).

- The Dkhila dam will supply water for irrigated farming around the town of Agadir at a cost of Mdir 65m (\$12m).

- The Mrader dam will supply water to the planned Nador steel mill extension, at a cost of Mdir 70m (\$13m).

- The Touahar dam will be used for the irrigation of a 3,350 hectare area close to the town of Taza, and will cost Mdir 110m (\$20.7m).

The second half of the decade will see a further acceleration of dam building. US and French businessmen are already preparing to compete for the large number of contracts which will be forthcoming. The main dams to be built between 1985 and 1990, are:

- The Mjara dam costing an estimated Mdir 2.4bn (\$450m). This giant dam is designed to irrigate 100,000 hectares in the Gharb Valley and produce electricity.

- The Sidi-Mohammed-ben-Abdellah dam, costing Mdir 150m (\$28m), will boost irrigation potential in the plain between Rabat and Casablanca.

- The Wadi Martil and Wadi Hachef dams will not only furnish drinking water to the northern towns of Tetouan and Tanger but will allow a further 3,000 hectares to be brought under irrigation in the Tetouan region.

- The Zerrar dam costing Mdir 380m (\$72m) will supply the town of Essaouira with potable water, irrigate 1,000 hectares and make water available for the Meskala phosphate complex.

- The Mdez dam will provide more drinking water for the town of Fez and open up

new irrigated farming possibilities. It will cost Mdir 400m (\$75m).

- The Al Chouari dam — Mdir 690m (\$130m) — is essential for the future growth of the Marrakech region.

- The Dohar el Oued dam, costing Mdir 250m (\$47m), is designed to upgrade irrigation facilities in the Oumer Rbia basin.

However, irrigation alone will not ensure balanced agricultural production. In the past, export-oriented crops such as citrus fruits and winter vegetables received priority over staple food crops. The result has been a growing inability to provide food for Morocco's population: food imports in 1981 have been estimated at Mdir 2bn (\$377m), equivalent to about 25 per cent of the oil import bill.

The country's food deficit is likely to increase. The population grows by 3.2 per cent a year and agriculture by less than 2 per cent. But a shift in irrigation policy to cover food crops for domestic consumption would require a shift in land ownership. In the newly-irrigated regions, land ownership is concentrated in the hands of a few. In the Gharb, for instance, a hundred large concerns own land that once supported 12,000 peasants. In the Haouz area, one per cent of the population controls 38 per cent of the land, while 62 per cent own a mere 12 per cent.

The government is to a large extent dependent on the support of rural dignitaries and large landowners, and so has done little to save the small farmer or promote the modernisation of traditional agriculture through the introduction of cooperatives. International aid agencies in Rabat now talk of a crisis and the need for 'a new policy of agrarian change,' but the 1982 agricultural budget is characterised by the 'business as usual' approach.

# FARMERS' HOPES FADE AS DRY SPELL CONTINUES

Gaborone DAILY NEWS in English 28 Jan 82 p 1

[Article by Mishingo Mpaphadzi]

[Text]

**FARMERS** in the Central District have appealed to government to consider introducing drought relief measures in their district.

The farmers said it was apparent that the persistent dry spell in the district would affect crop production and livestock which form the major sources of income for the majority of households in the area.

In an interview with BOPA the farmers in Bobonong, Serule and Tshimoyapula noted that they had not yet moved to the fields due to lack of rain. The few who had ventured the dry lands said there was no chance of their crops surviving the scourging dry spell.

"We are now rather worried about the fate of our livestock since hopes of ploughing have totally faded," one sad farmer said.

Reports from Bokalaka area in the Central District indicated that cattle were dying in large numbers and one prominent

farmer, Mr Tumediso Chengeta, claimed to have lost about 250 cattle including calves.

Several farmers had started moving their cattle to better grazing areas but this effort is likely to prove futile as over-grazing poses another major problem.

The Acting Agricultural Regional officer Mr Molatihegi Modise has advised farmers to plant short term variety crops should rain come between now and February.

He said since it was obvious that the ploughing season would soon be over the few crops that have managed to germinate but were damaged by the dry spell should be converted into silage and used as livestock supplementary feeding during winter.

The Secretary of the Central District Drought Relief Committee, Mr Bob Mannathoko has indicated that committee members recently informed the central government that drought was eminent in the Central District.

He said there was no place in the district where pans had water. "The area for instance between

Palapye and Mahalapye has hardly had rain at all," he said.

The situation in neighbouring North East District is however comparatively favourable. The Francistown-based Regional Agricultural Officer Mr Rapula Kgotlele told our correspondent, Mr Solomon Lotshe, that ploughing in the North East in general was poor compared to last year. He said grazing was also in bad shape but fair in some areas.

The Regional Agricultural Officer pointed out that basically the rainfall had been scarce and the forecast for agricultural production was doubtful. Mr Kgotlele advised farmers to organise themselves to face the drought hardships.

The Francistown Veterinary Officer Dr A.A. Holmes said although the rain had been rather late and below average, the condition of livestock in the North East District remained fair.

He said grazing problems emanated from over-stocking. He noted that farmers in that district should destock but selling their cattle to the BMC when loadings re-start in March.

**BOPA**

## ETHIOPIA

### BRIEFS

**AFFORESTATION COMMITTEE SET UP**--A co-ordinating committee of forest resources conservation and development was set up here this week at regional level to mobilize the energy and resources of government agencies and mass organizations in preparation for a major afforestation drive in Illubabor Region. A meeting was held to elect representatives of government and mass organizations to set up the committee. Comrade Animut Kinde, Chief Administrator of Illubabor Region, chaired the confab. Briefings were given to the participants on the once abundant forest resources of the country and the efforts underway to minimize the effect of the destruction wrought on this precious asset. [Text] [Addis Ababa THE ETHIOPIAN HERALD in English 23 Jan 82 p 8]

CSO: 5000/5660

## BRIEFS

**BUSH FIRE CAUSES DESTRUCTION**--An internal bush fire reached its second week of devastating the Togo Plateau Forest Reserves on Saturday. Eye-witness reports said the fire had left in its trail extensive damage to cocoa farms, food crops including barns of maize and yams recently harvested. Farmers organized themselves to fight the blaze but all their efforts were not enough to halt it. Reports of fire disasters continue to reach Kwamikrom in the Volta Region from several areas. One such incident spoke of several pieces of cotton prints having been destroyed by the fire when a woman cloth seller had hidden them in the bush to escape the law catching up on her. The fire outbreaks were attributed to lack of rainfall in the area. Many plants have dried up making it easy for fire sparks to spread speedily. Rainfalls were last recorded in October. There had also been fire outbreaks in places around [line illegible] and Jasikan. A spokesman for farmers whose farms have been destroyed said the fire outbreaks, which started last week, had destroyed cocoa farms. However, no loss of life has been reported. [Text] [Accra GHANAIAN TIMES in English 8 Feb 82 p 8]

CSO: 5000/5670

## CALL FOR STEPS TO IMPROVE WATER SUPPLY

Nairobi THE STANDARD in English 9 Feb 82 p 4

[Editorial: "Water Supply Deteriorating in Langata"]

[Text]

THERE have been some increasing complaints from most residents of the Karen and Langata areas of Nairobi — one of the most valued residential suburbs — about the deteriorating water supply in the area.

It is of course appreciated that water supply in Kenya's capital is supposed to change for the better when the Chania-Kimakia water project comes into operation, when water supply in most parts of the city will revert to the Nairobi City Council.

But this does not mean that nothing can be done in the meantime. Since the opening up of the residential area many years ago, water supply in the area had been under the care of private undertakers. Under arrangements existing at the time, restrictions were placed on the proximity of boreholes and therefore of housing development and, in that way, it was possible to ensure that all home-owners had enough water.

As a result of this initial arrangement of carefully regulated estate development, many people of all races built their homes there. But recent events have been so disturbing that many home-owners have been faced with the rather awkward question of whether it is useful living in Langata and Karen after all.

The reason is that water has become unavailable, or when available, only intermittently so. Some residents have said that water is sometimes available, but that it does not appear that there is enough pressure to push water to the water tanks.

The reasons for this unusual development is twofold. One, and some of the Government departments concerned have been willing to accept, is that there has been uncontrolled real estate development.

That this is the case is evident from the masses of construction going on in that area. Clearly, something ought to be done about this uncontrolled development. It is neither good for the area as a whole or for the developers themselves.

For if they continue with their real estate development, who will buy houses in an estate that has no water? Some of these developers have anticipated this question and started to sink boreholes in their plots. Most of these boreholes, in close

proximity to one another and usually of the same level — 400 feet — are having the effect of exhausting old supplies.

Clearly, this uncontrolled sinking of boreholes should stop partly to prevent inconvenience to home-owners and partly to give the Ministry of Water Development an opportunity to find alternative arrangements.

There have been many public meetings between residents and representatives of the various departments on a number of occasions and various promises have been made to the residents, and we suggest it would be a good thing if these promises were to be kept.

The new real estate developers should themselves understand that the call for the controlled sinking of boreholes and controlled real estate development is not necessarily aimed at preventing them to build their homes or to make money. The whole purpose of the exercise is really in the public interest. There is not very much water under the ground in that area and too much of this illegal practice could conceivably dry up the area.

It has been argued in some quarters that Nairobi City Council's ability to supply water to this area — as well as other areas of the capital — may take some time to accomplish because of technical and administrative details. If this is so, some residents argue, then they are going to have to wait for many years before they can enjoy a continuous supply of water for their daily needs.

To some extent this fear is legitimate, after all it is a terrible experience for people to carry water in gallons from the City Centre to the suburb for family use — and some of them have large families anyway.

This inconvenience, however, need not beset the dwellers of that area until the Nairobi water supply arrangements are completed.

The Ministry of Water Development can step in and rescue these residents by authorising the urgent sinking of boreholes to new and deeper water levels, like 1,000 feet instead of the present 400 feet. In this way, the supply of water can be assured at least until Nairobi's water arrangements have been finalised.



## BRIEFS

SPECIAL FOREST PRESERVATION UNIT--The Special Forest Inspection and Protection Unit in the Ministry of Environment and Natural Resources will operate in the same manner as the anti-poaching unit. And forest officers and the provincial administration should mobilise wananchi to plant more trees. Permanent Secretary for Environment and Natural Resources, Mr Archie Mbogho, said this when he paid a courtesy call on the Meru District Commissioner, Mr Anthony Waituika, at the D.C.'s office. Mr Mbogho said Government attached great importance to indigenous forests and "everything possible must be done to preserve them." Reafforestation must be undertaken immediately in all devastated areas, he said, adding that the presidential directive that tree nurseries be established by chiefs and assistant chiefs in their respective locations must be implemented. Meanwhile, Mr Mbogho said in Nyeri that any indiscriminate felling of trees in the forests for purposes other than afforestation should be stopped completely. [Text] Nairobi THE STANDARD in English 12 Feb 82 p 5]

CSO: 5000/5676



MAURITIUS

BRIEFS

'DAMIA' DAMAGES--The government has approved the Bheenick mission's report on damage caused to Rodrigues by Cyclone Damia, estimated at 12 million rupees. Though no loss of life occurred, 37 homes were destroyed and considerable damage was done to agriculture and stock: 268 cattle, 1819 pigs, 1,000 kids, 1,400 sheep and 26,000 fowl were lost. [Excerpts] [Port Louis THE NATION in English 30 Jan 82 p 1]

CSO: 5000/5674

DROUGHT HITS ONE-THIRD OF MAIZE CROP

Johannesburg THE CITIZEN in English 26 Feb 82 p 23

[Text]

**ABOUT** one-third of South Africa's 1981-82 maize crop appears to be dead as drought continues in main production areas, Maize Board general manager, Hendrik Nel, says.

He said by telephone from Pretoria if rain did not fall in growing areas within the next 10 to 14 days, losses could be considerably greater.

He declined, however, to estimate the potential out-turn.

National Association of Maize Producers' Organisation's chairman Fanie Ferreira said on Wednesday the 1981/82, September to April, crop could fall about six million tons to around eight million tons from a record 14.2-million in 1980/81.

The US Agriculture Department's attaché

in Pretoria forecast the crop at nine million tons in a field report dated February 23 and released in Washington on Wednesday.

The first official estimate of the crop will be released by the South African Agriculture Department in mid-March.

The Agriculture Department estimated land under maize at 4.68-million hectares this season, down from 4.72-million in 1980/81.

There has been no general rainfall in main maize producing areas since the start of the season, although scattered thundershowers have been reported in some regions.

Some farmers have had to cut a lot of maize for silage in order to save some of the crop, Nel said last week. — Reuter.

DROUGHT RELIEF LIST ORDERED

Salisbury THE HERALD in English 16 Feb 82 p 1

[Text]

BULAWAYO.

DISTRICT councils have been urged to start compiling an emergency list of families likely to be worst affected by the drought. This will be part of the programme worked out by the Government to help affected people following the failure of crops in the country.

Addressing members of the Kazi District Council and local residents at the edge of Kazi airstrip, yesterday, the Minister of Local Government and Housing, Dr Eddison Zvobgo, said it looked as though 1982 would be "a bad year in terms of crops".

"Drought has hit us very badly. There are a few places in this country where there will be good crops. Matabeleland has been a total failure," he said.

The minister said that the Government has worked out an emergency drought relief plan in anticipation of starvation. "We have to implement emergency procedures for survival. I know we will have to come up with a scheme to supply food to the worst drought-stricken areas," he said.

The minister went on to urge district councils to form their own national body, to create a more representative Local Government Association.

The minister said he had advised the urban councils' body to amend their constitution to be known only as the Association of Urban Councils.

With the existing Association of Rural Councils, they could then form the Local Government Association, he said.

CSO: 5000/5671

# EXPERIMENTS IN WATER POLLUTION CONTROL OF DONETS

Moscow SOTSIALISTICHESKAYA INDUSTRIYA in Russian 13 Jan 82 p 2

[Article by S. Pertsovskiy, contributor for the newspaper SEVERODONETSKIY KHMIMIK: 'The 'Donets', 'Nayada' and Others']

[Text] "Proceed to develop automatic systems for the control of hydroeconomic complexes in basins of major rivers of the European part of the country and Central Asia." (Basic Directions for the Economic and Social Development of the USSR for 1981-1985 and the Period to 1990.)

People in white coveralls have clustered around a small aquarium.

"Try a still smaller dose... Keep an eye on the reaction!"

"Copper content's three-thousandths," the lady lab worker announces.

"There's your signal!" Valeriy Petrovich Protsenko observes with satisfaction. He's senior engineer on monitoring and testing devices and automation. "Good job, little fish!"

Here, in the section working on an automatic control system for a water-protection complex [ASU VK--avtomatizirovannaya sistema upravleniya vodookhrannym kompleksom] of the All-Union Scientific Research Institute of Water Protection, a new and somewhat unusual device is undergoing tests. The very inhabitants of a river--the fish and the mollusks--are going to report on the river water's cleanliness.

"It's all rather simple," they explained. "Look. There's clean water in the aquarium now--the fish are swimming peacefully in the left half. A weak electromagnetic field is repelling them from the right half. On the left, now, we'll open a valve and let in a little effluent from the biochemical cleaning equipment of the Severodonetsk "Azot" [Nitrogen] Production Association. No reaction means everything's okay. But what if there's copper in the effluent? Then the electric current's not going to hold off our little helpers any longer--the gradually permeating harmful substances force them into the still clean right half. Contacts function and a warning signal goes instantly to the ASU VK control point."

The mollusks, attached to special sensors, react to a specific group of substances also. The hinges of their shells clench up tight in a flash. Samples of the in-

dustrial effluents of all the chemical enterprises on the Severskiy Donets River will automatically pass through aquariums like this soon.

So, this is ASU VK. What's on the other side? Don't think the Donets and the Bakhmut, its tributary, went untended. Far from it. But the data got to Gosvodinspektsiya [State Committee for Water Inspection] and the water user services but occasionally then. Meanwhile, the chemical enterprises here--"Khimprom" [Chemical Industry] Production Association in Slavyansk, "Krasitel'" [Dye] Production Association in Rubezhnoye, "Azot" Production Association in Severodonetsk, and the soda plant in Lisichansk--were causing no little trouble. Defects in the operation of cleaning equipment or technological system breakdowns were, of course, corrected immediately. But the river had already had time to suffer. It's altogether different now.

The array of facilities protecting nature is not limited to biological methods, certainly. The use of instrumental methods to determine the condition of effluent water is expanding, and sampling is being automated. At checking stations--the original ASU VK outposts (there are more than 10 of them) one can see the samplers with a 24-hour "memory". A routine liter portion arrives here every hour from river or discharge channel.

Then there's the overall picture. Automatic "Nayada" complexes come to their aid here. The worst strained 100-kilometer stretch of the river from the city of Slavyansk to the settlement of Svetlichnoye, near Lisichansk, has been put under the unremitting watch of the new system.

Data from primary analyses go every five minutes day and night to a central control point via communication channels. Recently, video terminal and other apparatus were installed, enabling the controller on duty to clearly present the situation as to the flow and composition of the water, cleansing and discharge of effluents and the compliance of every major water user with established norms. An electronic computer runs calculations on 30 indexes. And this characterizes the water's quality to an adequate degree.

Monitoring is just the beginning. Specialists at Khar'kov's All-Union Scientific Research Institute of Water Protection have also planned a system for controlling the water's cleanliness. Upon detection of an elevated concentration of harmful impurities, ASU VK will send a regulating signal via remote control apparatus to a shut-off device.

The associates of the All-Union Scientific Research Institute of Water Protection have also developed the "Donets" complex program, designed for the period to 1990. A similar program was accomplished for the Dnepr as well. The scientists' suggestions on the need to appoint sole masters of river basins, and establishment of unified republic and, subsequently, all-union automatic control systems for water protection are extremely important. It is obviously necessary for agencies engaged in the water resources business--first and foremost the Ministry of Land Reclamation and Water Resources, and also the USSR State Committee for Science and Technology--to pay more attention to these considerations. The Donets is important, but it's just one of our many rivers.

5454

CSO: 5000/9

# LAND RECLAMATION AND UKRAINIAN OPEN-PIT MINING

Kiev PRAVDA UKRAINY in Russian 18 Oct 81 p 2

[Article by V. Davydochuk, candidate of geographical sciences, senior scientific associate of the Department of Geography, Marine Hydrophysics Institute, Ukrainian SSR Academy of Sciences: "Behind the Bulldozer is a Planter"]

[Text] The extraction of mineral resources by open-pit mining possesses considerable economic and technological advantages and is becoming ever greater in scope. In the process, however, there is no avoiding intensive negative effects on nature. The lands withdrawn from rotation undergo a very substantial transformation under pressure of heavy equipment and, after extraction is finished, they become, as a rule, something of an obscenity, and are sometimes reminiscent of the lunar landscape. These plots of land drop out of agricultural circulation then, and it is difficult and sometimes impossible to find a full-fledged replacement for them.

The problem is aggravated further by the fact that the open pit doesn't just spoil the landscape. It has an adverse effect on adjacent, productive fields and on the surface and underground waters which, to a large extent, govern the nature and the condition of vegetation and the soil cover. The rock dumps make the air dusty. It takes nature many years to cover the dumps and the abandoned workings with weeds and undergrowth.

Land recultivation has become an indispensable part of the socialist utilization of nature. The Basic Directions for the USSR's economic and social development in 1981-1985 and the period to 1990 provide for "improving the protection of nature, intensifying work on the conservation of agricultural land and fighting soil erosion, increasing the tempo of land recultivation...".

In our republic the recultivation of open pits and dumps has reached extensive proportions in the Krivoy Rog and middle Dnepr areas, as has the recultivation of waste heaps in the Donbass.

Positive experience has been gained, too, at the Irshansk Mining and Concentration Combine imeni 25th CPSU Congress (Zhitomirskaya Oblast) where, in 10 years' time, over 700 hectares of forest and agricultural land have been restored to life. Now the collective has set itself a goal--to reclaim every year as much land as is taken over for expansion of the pits.



Recultivation for forestry purposes meets with the greatest success at the Irshansk Combine. In the process, loam which was earlier deposited deep beneath the sands is selectively incorporated in the root zone. And the simple pine shows no less growth here than on natural "whole" ground. Other, more demanding varieties should be tried.

As the Irshansk people's experience shows, collective gardens bear well on the restored areas.

The recultivation of agricultural land is highly complex and laborious. To this end, topsoil is picked up and laid on a surface which has been leveled. In order to restore the soil's fertility the recultivated plots are put into green-manure crop rotation for a number of years.

The Irshansk Combine's experience merits attention. A comprehensive scientific substantiation of the operations is needed. The recultivation of land is growing into a major scientific problem which, it would appear, joins together a number of separate, non-interrelated elements. In essence, the development of new nature complexes with prescribed properties is what's taking place.

Scientific substantiation should provide the answers to numerous questions. For instance: In order to recreate a fertile field is it enough to put down 20 centimeters of soil over a random mix of strip-pit rock? It's known, as a matter of fact, that woodland soils often owe their fertility to some combination of deeper soil levels and soil-forming rock, e.g., to the presence of a bed of loam 0.5-1 meter deep in sand.

It is also necessary to study the soil biochemistry of recultivated lands and learn what factors are making for high productivity in some instances and low productivity in others. And there is a need to find out what changes have occurred in the surface water and ground water conditions.

It is necessary, moreover, to consider to what extent the naturally restored lands fit into the surrounding landscape, how much the bordering areas suffered while the mining was going on and whether they are in need of recultivation.

The answers to these and many other questions should be obtained from fundamental works on the theory of landscape science being done in the Department of Geography of the Ukrainian Academy of Sciences' Marine Hydrophysics Institute on the basis of the results of research being conducted under an assignment by the Ukrainian Academy's Northwest Scientific Center, the establishment of which has created opportunities for a closer relationship between science and production in that part of the republic.

Of course, the solution of the problems posed requires painstaking scientific work and certain expenditures, but there is no doubt that the land will pay in full for the care devoted to it.

5454

CSO: 5000/9



## DONETSK LAND RECULTIVATION LAGGING

Kiev RABOCHAYA GAZETA in Russian 4 Dec 81 p 4

[Article: "Will Gardens Start Blooming on the Dumps?"]

[Text] The Donetsk territory--hundreds of industrial giants that demand diverse natural resources and, of course, give back to the environment huge masses of production wastes. In Donetskaya Oblast much is being done so that land, air, water and forests are not contaminated, so that the population is guaranteed healthful ecological conditions. Every day in all rayons attention is devoted to the protection and rational utilization of land resources. Well known to everyone is the initiative of the deputies of the Ivanopol' rural soviet and the Krasnotorka town soviet, who proclaimed a campaign to save each hectare of land. As a result of this movement more than 30,000 hectares of land which was previously not being used was put into agricultural rotation. Operational groups were established in the executive committees of local soviets and special commissions were established at collective farms and state farms and are identifying more and more new land reserves.

Not all of these lands are going under the plow, of course. Large areas were turned over to the foresters. More than 10,000 hectares of young woodland were grown on those areas in recent years. Woodland parks are growing around the cities. With the help of botanical garden scientists the greening of the rock dumps is progressing.

But the problem of protecting the land is urgent as before. Fifteen thousand hectares are still under rock dumps and the allocation of land is continuing.

What goes on, by way of example, in the mining industry? Every year 80 million cubic meters of rock comes from the mines and the concentration works. Every year the dump areas grow by more than 100 hectares. The cardinal question is how to avoid bringing the rock up to the surface. Use rock fill complexes. A number of reasons, though, prohibits doing this on a large scale. A measure which can sharply curtail and then completely end discharge into the atmosphere of combustion products from the dumps is to extinguish them, then landscape the waste heaps.

Specially created administrations for extinguishing the dumps and recultivation of the land are carrying on these operations in the production associations. Progress was checked in the Donetskugol', Artemugol' and Krasnoarmeyskugol' Associations by a raid team.

The participants in the raid ran into many serious deficiencies. In the Krasnoarmeyskugol' Association, headed by P. M. Bigma, there are 6 mines with 10 rock dumps which are covering 129 hectares of once arable land. Rock is filled into depleted areas only at the Mine imeni Shevchenko, and then only to the extent of one percent of the total amount of rock brought to the surface. A crusher-loader complex is being installed at the Mine imeni Stakhanov.

Work on extinguishing and the prevention of spontaneous ignition is in process at three dumps. But the rates at which they're being extinguished and the spoiled areas recultivated are slowed due to shortage of bulldozers and other machinery. A lack of crusher-loader complexes doesn't allow curtailment of the rock output from the mines, and this results in alienation of additional plots of land for dumps. Landscaping of extinguished dumps is practically non-existent in the association, and hopes for improvement of the situation during the 11th Five-Year Plan are slim. Plans are to landscape just two of the rock dumps, but even this hasn't yet been made official via the appropriate agreements with the botanical garden.

In the Artemugol' Association, headed by M. F. Malyuga, there are 64 rock dumps. Some 2 million cubic meters of rock come up every year. The dumps take up 250 hectares of land. There are eight crusher-loader complexes operating and 5.5 percent of the rock brought up is filled into excavations. During the last five-year plan the miners recultivated 21 hectares of spoiled surface and turned them over to the former users. We could be happy about this if the Artemugol' Association had not, just this year, taken away another 15 hectares of fertile land for new dumps.

There's not enough attention to landscaping. At the Kochegarka Mine dump, for instance, 50,000 nursery plants were set out when the program called for 102,000. Even this much isn't being done at other dumps.

The workers of Donetskugol' Association (general director N. S. Surgay) deserve censure. Here, 654 hectares were "borrowed" from collective farms and state farms for dumps, and only 161 hectares were recultivated during the 10th Five-Year Plan.

More is being done in the way of landscaping. The miners, together with botanical garden scientists, have, in recent years, transplanted and grown 950,000 white acacia seedlings. Alfalfa is growing well on the dumps of such mines as the Mospinskaya and Trudovskaya.

It's desirable to note the enviable activity of the Donetskugol' Association community. There are 26 nature protection society primary organizations here. Persistence in accomplishing projected goals and determination distinguish the majority of them. Thus, at the Mine imeni A. F. Zasad'ko landscaping of waste heaps is being done through the efforts of the nature lovers headed by primary organization chairman Raisoy Stryuk. Nature lover V. I. Korol' is engaged in landscaping at the Mine imeni Kalinin. There are many such examples.

We raid participants were convinced that the extinguishing of the rock dumps and the recultivation of spoiled areas would proceed more successfully if there were no restrictive circumstances. Appropriate services of the production associations are poorly supplied with equipment. An acute need is perceived for plant material to landscape the rock dumps.

All this points to the fact that the republic's Ministry of the Coal Industry, in making decisions on production matters, should devote more attention to the introduction of rock-loading complexes, to problems of waste-heap landscaping, and to the recultivation of spoiled areas and their return to agricultural rotation.

The RABOCHAYA GAZETA raid team: A. Usenko, responsible secretary of the presidium of the oblast soviet of the society for the protection of nature; A. Sytnik, chief of the oblast social inspection staff, head of the group for protection of the air basin of the Donetsk affiliate of VNIPIchermetenergoochistka [All-Union Scientific Research and Planning Institute (balance of expansion unknown)]; V. Baklanov, candidate of biological sciences, head of the Division of Experimental Ecology of the Donetsk Botanical Garden; A. Mazur, candidate of biological sciences, junior scientific associate of the Division of Experimental Ecology of the Donetsk Botanical Garden; B. Masalev, M. Popov, V. Karamchaninov, specialists from the Donetskgol', Krasnoarmeyskgol' and Artemugol' Production Associations.

5454

CSO: 5000/9

# EARTHQUAKE REPORT IN AZERBAIJAN

Baku BAKINSKIY RABOCHIY in Russian 8 Dec 81 p 1

[Article: "In Combat With the Elements"]

[Text] Approximately 20 earth tremors have been registered in Azerbaijan in the last month. They were particularly strong from 2 December to 4 December in the Ismaillinskiy Rayon area. According to the preliminary accounts, within a radius of up to 50 kilometers from the earthquake's epicenter more than 2000 structures, mostly of old construction, suffered damage. They include residences, 11 schools, many industrial structures, businesses, medical facilities and other establishments. Especially hard hit were residents of the villages of Midzhan, Kalyndzhak, Geytepe, Myudzhyugaftaran, Rushan, Vank, Kushendzha and the rayon center, Ismailly. Most of the buildings in these populated points were damaged and many were destroyed.

A staff has been set up to render aid to the victims and remedy the aftereffects of the quakes. It was headed by G. N. Aslanov, first secretary of the Ismaillinskiy Rayon party committee of the Azerbaijan Communist Party. A working commission is assessing the damage wrought by the natural calamity.

Special squads made up of communists and Komsomol [Leninist Communist Youth League] members and Rayon workers, with the help of Baku garrison troops sent in for rescue operations, evacuated the people from the most dangerous zones. Clearing of destroyed structures is in process, army tents are being erected, and mobile kitchens and mobile shops are in operation. Steps are being taken to organize school studies in suitable quarters. Financial agencies have moved in for the payment of insurance and other benefits.

On 5 December, G. A. Aliyev, candidate member of the Politburo of the CPSU Central Committee and first secretary of the Azerbaijan Communist Party Central Committee, arrived. With him were G. N. Seidov, chairman of the Azerbaijan SSR Council of Ministers, Lieutenant General A. V. Kovtunov, member of the Bureau of the Azerbaijan Communist Party Central Committee, and A. D. Lemberanskiy, deputy chairman of the republic Council of Ministers.

Comrade Aliyev visited the locales hardest hit. In Rushan, Midzhan, Myudzhyugaftaran and Ismailly he talked warmly with the townsfolk and remarked that the Ismaillinskiy people were displaying great courage and will in the face of the ele-

ments. He was interested in details of what had happened, inquired about needs, responded to questions, talked about the measures planned by the Central Committee of the Azerbaijan Communist Party and the government of the republic to aid the victims, and offered practical advice.

At the home of worker V. Abutaliybov in Ismailly, G. A. Aliyev asked for more details about what had occurred.

"We were feeling tremors the last 15-20 days," he said. "Often they were slight, intensity at the 2-3 level, though there were stronger ones. But the last couple days it was like this. The house withstood the first strong shock, but after the third one a wall went down... I must say, originally, when I'd gotten over the scare, I thought: What do I do now? Can't live in three walls, and the roof's about to come down. It's raining out in the yard and winter's just around the corner. But just an hour later the rayon party committee people arrived, moved our family into a tent and provided all the primary necessities. And all my neighbors got the same kind of help."

Practically all residences and other structures in the mountain village of Rushan were either destroyed or heavily damaged. In the course of one conversation, a lady villager, Ye. B. Nazaryan, the local school's elder teacher, expressing the general feeling, said to comrade Aliyev:

"We didn't doubt for a minute that our own communist party and the republic's leadership are going to do everything to help those of us who have come to grief. Thank you very much for the kind words of cheer and for speeding up the job of assistance."

In the villages of Midzhan and Myudzhyugafteran most structures suffered from the earthquake to one degree or another. The school buildings, which date from the early twenties, sustained heavy damage. After surveying the cracks and deterioration, comrade Aliyev underscored the need to start construction of new schools early on, schools meeting today's requirements, and to provide the children now with the maximum favorable conditions for normal studies.

That same day, comrade Aliyev held a meeting of the staff to aid the victims and remedy the aftereffects of the earthquake. Participating were members of the Ismailly Rayon committee bureau of the Azerbaijan Communist Party and the rayon soviet executive committee, responsible workers from rayon organizations, the heads of the republic's State Committee for Construction and the republic's ministries of rural construction, industrial construction, communications, motor transport, education and public health, Glavzmeliovodstroy [Main Administration of Land Reclamation and Water Resources Construction, Azerbaijan SSR], Glavgaz [Main Administration for Gas Supply], and Azerittifak [expansion unknown], and scientists, experts in seismology and geophysics. Comrade G. A. Aliyev gave good marks to the work of the rayon party committee, the rayon executive committee and the rayon staff. He reported that, by decision of the Azerbaijan Communist Party Central Committee, a government commission had been established to aid the Ismailly Rayon victims, chaired by deputy chairman of the Azerbaijan SSR Council of Ministers, A. D. Lemberanskiy. The commission is empowered to undertake urgent measures to render aid to the victims, determine in the shortest possible time the arrangements for



the restoration of housing, public, industrial and other buildings, and arrangements for getting material assistance to the people.

Comrade Aliyev went on to say that emergency help has been given the victims. One hundred and sixty large army tents have been pitched in safe areas and erection of them is continuing. The problem is to as quickly as possible outfit them, lay the floors and provide heat and electricity. In the days just ahead, trailers will be moving into the hardest hit populated points. Construction workers will use them under field conditions for housing. Prefab wooden houses will be arriving also. G. A. Aliyev emphasized that, at the same time, it is necessary to accurately determine the level of damage of each building and, where possible, to go ahead with repair and restoration work.

The republic ministries and departments must provide the people of the Rayon with all possible assistance in the way of building materials, transportation, food, manufactured goods and medications. It is the duty of ideological workers, the whole party and komsomol active membership, to bring home to every toiler in the Rayon the measures being undertaken by the government. Comrade Aliyev expressed confidence that communists and the whole population of Ismailinskiy Rayon will henceforth display a high degree of organization and discipline and, with the help of the government, will overcome the effects of this natural calamity in short order.

5454

CSO: 5000/9

# AZERBAIJAN EARTHQUAKE AFTERMATH, AID DESCRIBED

Moscow PRAVDA in Russian 16 Dec 81 p 6

[Article by PRAVDA correspondent L. Tairov: "After the Earth Tremors"]

[Text] The small Azerbaijan railroad station of Myusyusli has experienced a change these days; freight trains are stopping here more often and stone, cement, lumber, commercial goods and food products are being unloaded. Dozens of vehicles hurriedly carry them off down the road. Additional track and baggage areas are being put in operating condition.

Many in the Azerbaijanian capital didn't notice the earthquakes. Somebody said, "I'm sitting in the armchair and suddenly it rolled to the TV." Others noticed that that the dishes in the sideboard suddenly started rattling for no reason at all.

But here in mountainous Ismaillinskiy Rayon the earth tremors were very much felt. The force of the quake wasn't over 4 balls in Baku, but in Ismailly it reached 6. According to preliminary accounts, within a 50-kilometer radius a large number of structures, mostly old ones, suffered damage. There were no casualties.

A rayon staff and a government commission were organized immediately. Aid is getting to the victims quickly. It's coming from neighboring rayons of Azerbaijan and from other republics. The government has provided facilities and materials. They too are being forwarded mainly via Myusyusli.

A group of scientists has arrived from Moscow. What has happened here has aroused the specialists' interest: During the last month there have been some 20 earth tremors registered in the Great Caucasus mountains. And they are still going on. A mud volcano erupted unexpectedly. A. Ali-Zade, doctor of geological-mineralogical sciences, director of the Institute of Geology of the Azerbaijan Academy of Sciences, reported: "The present geological phenomenon in Ismaillinskiy Rayon is connected with the activation of a major deep fracture along which the Alazano-Agrichayskaya valley abuts the Amirvanskiy chain. This valley has been sinking imperceptibly for a long time while the Great Caucasus piedmont has, on the other hand, been lifting...."

The victims received immediate help. Neighbors took in those who lost their homes. In the worst hit towns tent cities went up, and they are heated. The first prefab



panel houses have arrived to accommodate polyclinics, kindergartens and day nurseries. Local school classes have been accommodated in dozens of trailers. It's crowded. But lessons were hardly interrupted. Field kitchens are moving about with hot food and tea. Mobile shops are operating with necessary goods and products. The clearing of demolished structures is in process. First secretary of the rayon party committee, G. Aslanov, who is heading the staff to remedy the aftereffects of the earthquake, reports: "Gas and electric lines have been restored. A tank is being installed for regular supply of drinking water. We're expecting up to a thousand prefab panel houses. They are coming in at an accelerated pace. Some 200 vehicles have arrived here."

The toilers of the rayon, staunchly withstanding the caprices of the elements, are displaying courage and determination in order to more quickly alleviate the earthquake's consequences.

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CSO: 5000/9

INTERNATIONAL ENVIRONMENTAL PROTECTION SYMPOSIUM IN TBILISI

Tbilisi ZARYA VOSTOKA in Russian 11 Oct 81 p 4

[Article by A. Kikodze: "The Air Will Be Clean"]

[Text] An international symposium on complex global monitoring of environmental contamination will begin its work on 13 October in Tbilisi.

It is being held under a UN program dedicated to the study of the environment, and on the initiative of the World Meteorological Organization in matters of education, science and culture, the USSR State Committee for Hydrometeorology and Environmental Control and the Georgian SSR Academy of Sciences, at the base of the Georgian SSR Academy of Sciences and the Transcaucasus Regional Scientific Research Institute.

The matter of protecting man's health from the negative consequences of his economic activity has become an acute problem worldwide in the course of recent decades. The problem has become so urgent as to assume an international character. In the dire situation which has developed objective information on the true state of the biosphere and the prognosis for its future is especially important. In connection with this the question has been raised about organizing special systems for observing, checking and evaluating (monitoring) the condition of the environment in areas of intensive anthropogenic activities.

"For many years now, various geophysical services have been engaged in watching the natural changes in the condition of the environment, the biosphere," says G. Svanidze, corresponding member of the Georgian Academy of Sciences, director of the Transcaucasus Regional Scientific Research Institute and deputy chairman of the symposium's organizing committee, "meteorological, hydrological and agrometeorological services surveying sea and ocean conditions, ionosphere services for tsunami warnings and others. The responsibilities for most of these services here in our country are laid on the USSR State Committee for Hydrometeorology and Environmental Control. Specialists in the various countries of the world have garnered a great deal of experience. The World Meteorological Organization and the World Weather Service perform these functions on an international scale.

The symposium which is being held in Tbilisi should adopt scientific and practical recommendations on protection of the environment. There have been two international symposiums on monitoring prior to this one: in Stockholm, where it was concluded

that a unified system for observing and checking environmental contamination, and in Riga, where the scientific fundamentals of the study of monitoring were worked out.

Prominent scientists from our country, Hungary, East Germany, Japan, the United States, Canada and other countries will participate in this symposium here. For a period of five days the experts will examine the following items: the scientific fundamentals of complex monitoring of the environment, monitoring of background contamination levels, criteria for evaluating and setting standards for the quality of the environment, the simulation of contamination processes and others.

5454

CSO: 5000/9

# RESIDENTIAL BUILDINGS NEED SOUNDPROOFING

Moscow PRAVDA in Russian 2 Nov 81 p 3

[Article: "Lest It Be Harmful"]

[Text] Problems of noise and the inadequate soundproofing of residential buildings were touched upon in a survey published under the above title on 12 August.

The editorial office received a reply to that article from S. Zmeul, deputy chairman of Gosgrazhdanstroy [State Committee for Civil Construction and Architecture] under Gosstroy SSSR [USSR State Committee for Construction Affairs]. The response states that the establishment of standards for the soundproofing of habitable premises is not only a social problem but also a very complex economic problem. Thus, in order to increase sound insulation from airborne noise by 2-3 decibels it would be necessary to increase wall thickness by 4-6 centimeters. This, in turn, will result in an increase of 20-25 percent in the cost of construction.

The design decisions on the construction methods for walls between apartments and the overhead covers between floors in standard designs developed after 1970 for large-panel and brick apartment houses provide for a level of standard requirements in regard to soundproofing which is confirmed by the results of sound insulation tests performed in 1970-1975 in residences of the new design series.

Inadequate soundproofing is found in apartment houses which were built and are being built in accordance with standard designs developed prior to 1970. The amount of residential construction according to these designs is gradually being reduced.

A decrease in the level of soundproofing in houses built according to the new standard designs has to do with low quality of construction and violations of design decisions. These include: poor sealing of joints between panels of walls and overhead covering; nonequivalent substitution of materials for flooring and the sound insulating layers in the overhead structure; poor sealing of openings for vertical pipes etc. running through the overhead structure.

In connection with this Gosgrazhdanstroy has directed letters to:

construction ministries and departments--with the requirement to adopt extra measures to provide for high-quality implementation of design decisions in construction and assembly, especially with respect to sealing and caulking the joints between elements, and not allowing substitution of materials and parts specified in plans;

to the state committees for construction of the union republics, and to agencies for design, technological and government architectural and building control--concerning the need to be more exacting and to tighten control on the quality of construction and installation operations, particularly those which govern the level of soundproofing of residences;

to the union republic state committees for construction, construction ministries and departments--concerned with taking the required steps for maximum possible reduction of the amount of residential construction under obsolete type plans whose construction methods do not meet present-day requirements for soundproofing.

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## BRIEFS

**KIRGIZ RECULTIVATION**--The article, "There Shouldn't Be Worthless Land," published 25 Jul 81 in SOVETSKAYA KIRGIZIYA, was reviewed at Sredazugol' Association. Kirgiz coal mining enterprises have messed up 2561 hectares of land. Included are 495.5 under dumps, 660.3 in open-pit excavations and 1405.2 in chipped out sites and other mine facilities. There were 901 hectares recultivated during the 10th Five-Year Plan. Compared with 1977 the wasted area was reduced by 556 hectares. In putting together the results of socialist competition among the coal mining enterprises, the recultivation index has to be taken into account. The current five-year plan calls for restoration of 190 hectares. Capital investment for it is set at 5.5 million rubles. The association has concluded an agreement with the Kirgiz Scientific Research Institute of Soil Science for the conduct of scientific research work on the topic: "Development of recommendations on biological recultivation of land violated by Kirgiz SSR coal mining enterprises." [By A. Leleko, general director of Sredazugol' Association] [Text] [Frunze SOVETSKAYA KIRGIZIYA in Russian 11 Sep 81 p 2] 5454

**BAYKAL EARTHQUAKE**--Irkutsk--Yesterday at 0818 Moscow time an earthquake measuring about 4 balls on a 12-ball scale was felt here. The epicenter was under Lake Baykal some 90 kilometers southeast of Irkutsk. "The seismic station network registers over 2000 earthquakes in this region every year," says S. Golenetskiy, head of the regional seismicity laboratory of the Institute of the Earth's Crust in the Siberian Department of the USSR Academy of Sciences, "but they're rarely felt by city and town dwellers. They're not damaging since their epicenter is, as a rule, in the Baykal water area. In recent months, we've noticed an increase of seismic process activity in the central and southern parts of the lake. It's connected with the continuing formation of its depression." [Text] [Moscow SOTSIALISTICHESKAYA INDUSTRIYA in Russian 26 Aug 81 p 4] 5454

**KOLYMA EARTHQUAKE**--Instruments of Magadanskaya Oblast seismic stations registered an earth tremor yesterday at 0056 Moscow time. Its force at the epicenter, 300 kilometers north of Magadan, reached 7 balls on a 12-ball scale. A force of up to 4 balls was felt in the oblast center, and up to 5 balls was felt in the rayon centers of Omsukchan and Ust'-Omchug. Some mountain villages experienced 5 balls. Casualties and damage were nil. [Text] [Moscow KOMSOMOL'SKAYA PRAVDA 10 Nov 81 p 4] 5454

**RECORD SNOWFALL IN MOLDAVIA**--Never before in this century have meteorologists here in Moldavia recorded a 40-centimeter-deep snow cover in November. [Text] [Moscow SOTSIALISTICHESKAYA INDUSTRIYA in Russian 14 Nov 81 p 6]



MOLDAVIAN EARTHQUAKE--Kishinev, 13 Nov 81--There was an earthquake in Moldavia today at 1207 Moscow time. The force reached 4 balls in the republic capital and up to 5 in the southern regions, on a 12-ball scale. The tremors lasted about a minute. There are no casualties or damage. The TASS correspondent was informed at the "Kishinev" seismic station that the epicenter was located 200 kilometers south of Kishinev. [Text] [Moscow SOTSIALISTICHESKAYA INDUSTRIYA in Russian 14 Nov 81 p 6] 5454

EARTHQUAKE IN BAKU--On the evening of Thursday, 19 November, many Baku residents, at home, noticed a sudden, unexpected and unusual swinging of the chandeliers and felt some sort of jolts, even slight oscillations of the floors and walls. Earthquake. Not everyone noticed it. People who were moving, on the streets, in the subway, even in apartments on lower floors paid no attention. This VYSHKA correspondent talked by phone with K. Islamov, head of the seismic station of the Geofizika scientific center of the Azerbaijan Academy of Sciences, and asked for his comments on the phenomenon. "A fix on the tremors was obtained by all republic and we think, Caucasus seismic stations at 1910 hours 40 seconds. We don't have the epicenter's exact coordinates; the materials are still being processed. According to the preliminary data, however, it's situated 80 kilometers plus south of Baku, and the focus is very deep in the earth. The earthquake's force at that point was about 7 balls; in our city it was just 4 balls, so not everybody noticed it." "What caused it, what are the aftereffects, and when was the last earthquake in Azerbaijan?" "The usual reason is tectonic movements in the earth's crust. More precise answers to your first two questions will be provided by our expedition which is being dispatched to survey and collect on-site macroseismic data. The last earthquake in Azerbaijan was of somewhat less force and was detected on 16 January 1980. That one and the one that just occurred presented no danger to people or to buildings. [By V. Busalayev] [Text] [Baku VYSHKA in Russian 21 Nov 81 p 4] A 4-ball earthquake was registered in Baku. On the evening of 19 November Baku residents felt the first tremor. It was followed by another about as strong. At the "Baku" seismic station the Azerinform correspondent was told that the force reached 6 balls on a 12-ball scale at the epicenter 82 kilometers west of the capital. The tremors lasted 3 minutes and were caused by crustal tectonic movements, in the scientists' opinion. Effects were felt by residents of Sumgait, Shemakhi, Ali-Bayramlov, Imishlov and other Azerbaijanian cities. There were no casualties or damage. [Text] [Baku BAKINSKIY RABOCHIY in Russian 21 Nov 81 p 4] 5454

'PRAVDA' REPORTS BAKU QUAKE--Baku, 20 Nov 81 (TASS)--A 4-ball earthquake was registered in Baku on the night of 20 November. It was reported at the "Baku" seismic station that the force reached 6 balls on a 12-ball scale at the epicenter located 82 kilometers from Baku. There were no casualties or damage. [Text] [Moscow PRAVDA in Russian 21 Nov 81 p 6] 5454

MORE ON ISMAILLY QUAKE--An earthquake with a force of 5-6 balls on a 12-ball scale occurred on 30 November at 0337 hours 31 seconds local time in Ismailinskiy Rayon, 30-35 kilometers west of the city of Shemakhi. [By A. Gasanov, head of the experimental methods expedition of the Geofizika scientific center, Azerbaijan Academy of Sciences] [Text] [Baku VYSHKA in Russian 1 Dec 81 p 4] Baku, 4 Dec 81 (TASS)--It is the third day of unrest in the bowels of the Great Caucasus. Immediately following some slight tremors this morning, a 6-ball earthquake was registered. The focus



and epicenter is located 20 kilometers from the rayon center, Ismailly. Several buildings in Ismaillynskiy Rayon were damaged. There were no casualties. [Text] [Moscow PRAVDA 5 Dec 81 p 6] Though not as strongly as before, the bowels of the Great Caucasus are, nevertheless, reminding us of the deep tectonic processes going on in them. On 16 December in Ismaillynskiy Rayon the republic's seismic service registered a series of seven jolts, five of which were felt as mild jarring on the surface. The force of them reached 3-4 balls on a 12-ball scale. There were no casualties or damage. [Text] [Baku VYSHKA in Russian 18 Dec 81 p 4] 5454

TADZHIK EARTHQUAKE--Dushanbe--The menacing subterranean elements have again made themselves known in the country's most active seismic region, Tadzhikistan. The "Dushanbe" republic seismic station registered a routine 4-5-ball earthquake with epicenter in Leninabad. There were no casualties or damage. [By V. Surkov, IZVESTIYA correspondent] [Text] [Moscow IZVESTIYA in Russian 10 Jan 82 p 6] 5454

AZERBAIJAN MUD VOLCANO--For 20 days now Azerbaijan seismic stations have been registering tremors on republic territory in the Great Caucasus. As already reported, there was a 4-ball earthquake in Ismaillynskiy Rayon on the morning of 7 December. Later the same day three more weak tremors at 2-3 balls and one at 4 balls were picked up. A mud volcano cropped up in the epicenter area due to the quake. Azerinform asked T. A. Ismail-zade, director of the Geofizika scientific center of the Azerbaijan Academy of Sciences, to comment on these unusual natural phenomena. "The emergence of a mud volcano is natural in processes of this type, though it's being seen in Ismaillynskiy Rayon for the first time," said the scientist. "The volcano isn't large; its crater diameter is about 5 meters. The mud flows aren't gushing but are slowly welling out on its slopes. What has caused the seismic activity in the area? The fact is that the Caucasus Mountains are comparatively young, 150-180 million years old; and the process of mountain formation is still going on. The mountains are growing slowly--about a millimeter a year. But once in 60-80 years the stresses down below reach a critical magnitude and there's an earthquake, such as happened in 1842 and 1902." Ismaillynskiy Rayon felt the effect of the elements in 1968, too, when an earthquake occurred during the summer, 6 balls on a 12-ball scale. A total of three tremors were registered at the time. This time, oscillations of the earth's surface have been noted more than 30 times at the Ismaillynskiy focus since 19 November. A mud volcano has started up. A substantial amount of subterranean energy has been let off in the area in a comparatively short time. This gives reason to assume that another strong earthquake in Ismailly is unlikely. [Text] [Baku VYSHKA in Russian 9 Dec 81 p 4] 5454

ELECTRICAL SEISMIC SOUNDING--Frunze, 11 Jan 82 (TASS)--Specialists in the Kirgiz scientific research division of power engineering of the USSR Ministry of Power and Electrification have tried out a promising method of forecasting earthquakes based on deep electromagnetic sounding. The work was done in seismically active Kirgiz areas. "It is known that a change in seismic conditions induces fluctuations of electrical conductivity in the earth's depths," says B. Botvayev, deputy division chief. "The study of these changes provides an opportunity to get a clear picture of tectonic processes." Heretofore, such investigations were done with complex and costly apparatus. The Kirgiz scientists used a method of deep sounding of the crust employing industrial power lines. Alternating current is converted to direct current at a substation and "fired" into the crust by special apparatus. The signals then received from the depths are recorded by geophysical stations and systematized. This enables tracking the development of seismic activity in the republic. [Text] [Moscow PRAVDA in Russian 12 Jan 82 p 3] 5454

AGENCY ISSUES REPORT ON EFFECTS OF PESTICIDES USE ON FOOD

Helsinki HELSINGIN SANOMAT in Finnish 2 Feb 82 p 7

[Article: "Pesticides in Foods Studied"]

[Text] Local governments do not have the funds to conduct studies on food products and the state does not have the resources to analyze and make use of the results. However, the situation is quite good and a child can safely nibble on a banana.

This was the assessment of the Commerce Administration in a report made public on Monday in Helsinki with respect to the use of pesticides on food products. The results of the study cannot be directly compared with foreign studies since the methods of measuring differ from one another.

On the initiative of the Commerce Administration information has been collected on pesticide residue on domestic food products during the years 1977--1980 as well as residue on imported food products during the period 1979 through 30 June 1981.

The effects of food preparation were not taken into consideration in determining pesticide residue in food products. For example, the values for apples were calculated on the assumption that they will be eaten unwashed and unpeeled. It is also assumed that lettuce will not be washed. The values obtained from bread grains could not be taken into consideration.

Inspection Becoming Stricter

Compared to many other countries pesticide residue is studied quite thoroughly in Finland. The number of studies has increased significantly in recent years and continues to increase. Domestic products are studied in the Health Research Laboratory of Helsinki and the foodstuffs laboratory in the VTT [State Technical Research Center]. Samples have been taken from wholesale- and retail sales establishments and directly from the producers.

Only a few instances of residue content exceeding the highest permissible level have been confirmed in domestic food products.

The customs laboratory is responsible for the inspection of imported food products. Studies are done on frequently used food products as well as products on which residue has been found previously.

In 1975 250 samples of imported food products were tested, but last year more than 5,000 samples were studied, which attests to the stricter approach taken by the customs laboratory. During the study period 9,631 samples were studied and now 60 percent of all imported food products are subjected to inspection.

In accordance with stipulations 438 imported food products or 3,792 tons of food were rejected during the collection of material for the study. A total of 1,643 tons of citrus fruit and 1,285 tons of apples as well as pears were rejected. The rejected lots were either destroyed or sent back, and the values contained in them were not taken into consideration in the calculations.

The results do not indicate the amounts of pesticides within an organism or their systemic values which raw food products on the average contain. However, it is believed that the evaluation method provides a reliable picture of substances obtained through vegetables, fruit, and berries.

#### Majority From Fruit

In the years 1977--1980 the average annual amount of pesticides received by each Finnish citizen was approximately 60 milligrams. Of this amount nearly 22 milligrams came from the surface treatment substances on fruit. On the whole, the amount of bromides occurring as a result of pesticide treatment was approximately 330 mg/resident/year.

The majority (48.1 mg) of substances obtained during the year originated from fruit. Approximately 5.2 mg came from vegetables, 2.4 mg from berries, and 0.6 mg from imported rice.

Tektacene confirmed in carrots in 1980 significantly affected the residual content of pesticides in domestic vegetables. Its proportion (3.9 mg) of the substances recovered from domestic vegetables was approximately 76 percent. Tektacene is no longer used.

Approximately 0.5 mg of pesticides was obtained from domestic fruit in a year, but the yearly amount increased to 47.7 mg if one includes the surface treatment substances from foreign fruit. The difference is the result of small residue contents in domestic fruit and also the result of less consumption.

The annual amount of pesticides received by means of domestic berries is 2 mg and upto .5 mg from imported berries. The majority of residue

from domestic berries originated from strawberries and currants. No accumulations of herbicides were encountered in berries on the market.

The largest amounts of pesticides obtained during the year (50 mg or 83 percent) originated from foreign products.

#### What Poisons?

There are approximately 600 different kinds of pesticides and approximately 260 preparations are actively in use. According to the customs laboratory it is important to know the conditions and legislation of the country from which products are being imported.

From the point of view of recovery the most important substances are benomyl, dithiocarbamates, and surface treatment substances. The recovery of benomyl, which is suspected as a source of cancer, was 14 mg annually, dithiocarbamates 10.5 mg, and surface treatment substances 21.7 mg. These three groups of substances covered 77 percent of all the substances recovered.

The main source of benomyl was imported fruit, the largest portion of benomyl (12.9 mg) originated from foreign products and only 1.1 mg originated from domestic vegetables, fruit, and berries.

Dithiocarbamates (9.6 mg) also originated primarily from foreign products, especially fruit. In the recovery of other fungicides attention is drawn to the fact that the proportion of domestic products was greater than others (3.8 mg or 89 percent of the total), but the majority (3 mg) consisted of tekmacene previously contained in carrots.

There is presently very little DDT in vegetables, fruit, and berries, but the large consumption of saltwater fish (herring) causes an annual DDT-recovery of approximately 0.8 mg.

There is only a scant amount of other chloridated hydrocarbons in plant products. However, there is a certain amount of toxaphene and chlordane in saltwater fish as well as fresh water fish, the recovery is approximately 2.7 mg annually.

Generally, there are very few organic phosphoric compounds in plant products. Approximately 4 mg of these substances were recovered annually.

The recovery of bromine from vegetables was 148 mg and from fruit 97 mg. Almonds, nuts, and dried fruit contained a rather large amount of bromine, but the recovery was only 2 mg. Additional bromine came from rice, for example, all in all the amount of bromine obtained was approximately 330 mg annually.

In a previous study the amounts of residue obtained were smaller than now. However, the studies are different; for example, surface treat-

ment substances were not previously included and studies were not extensively conducted on benomyl until after the middle of the 1970's.

#### ADI-Value Not Yet Established

If the results obtained are compared with the maximum amounts calculated on the basis of ADI-values compiled by FAO/WHO experts, the recovery of pesticides in Finland is observed to be one-tenth of the maximum amount at the most. The ADI-values (= mg/kg/day) tell how much of a certain substance a person can consume in relationship to one's body weight without any detrimental effects.

For example, the recovery of dithiocarbamates is according to the report approximately 8 percent and the recovery of organic phosphoric compounds as well as surface treatment substances is approximately 3 percent of the maximum amount.

It is considered that the results are in need of a more detailed analysis. At this time it was not possible to take specialized groups such as children into consideration. According to the researchers there is probably no serious danger from pesticides to specialized groups and, for example, a child can eat three bananas a day without any danger.

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CS0: 5000/2062



OIL, RESIDENTIAL-INDUSTRIAL SEWAGE IN KAVALA PORT

Athens TA NEA in Greek 28 Jan 82 p 7

[Text] Kavala (by our correspondent, Pavlos Alisanoglou)--Kavala port has been polluted irreparably by sewage from houses and industries, to the extent that there is a danger of epidemics. Local agents lay the blame on the former New Democracy minister of coordination, K. Mitsotakis, because he did not approve the necessary appropriations for application of the special study which had been composed on preventing pollution of the port.

No Measure

The situation is being aggravated by the constant oil slicks produced by the Prinos installations. There is no control on the installations, no specification, to protect the sea between Kavala and Thasos.

Six incidences have been noted recently, while just as many have slipped by in secrecy. The sea has been literally killed. The fishermen in the area are not finding a scale in their nets. The fish have disappeared. And with the new drillings in the northern Aegean, there is fear that this former rich fishing ground will be turned into a dead sea.

They Did Not Dare

The governments of the Right did not have the courage to demand that those responsible--who are exploiting Greek oil-- take the necessary measures to protect the sea at Kavala from pollution. Whatever did happen happened in haste, after pressure from area inhabitants and local tourist agencies.

Today, one-hundred kilometers of beach are in danger of being destroyed by the Prinos "heavy" oil and the area tourism, on which about 40,000 families live, is in jeopardy.

The mayors of Kavala and Thasos, D. Lolidis and Ath. Baltas, cried: Give us a percentage from the Prinos oil so we can save our cities and do work which will compensate for the oil damage. Unfortunately, the ND governments refused to discuss the matter.

Today the population of the area is expecting the government of change to effectively deal with the situation. There should be control on the Prinos oil

installations, whose hasty construction is probably causing the pollution. Within this framework, formation of a spirited council for environmental protection is being sought, with headquarters in Kavala, which will strictly control all those who pollute the sea and environment in the area.

9247

CSO: 5000/5315



ATTIKI BEACH POLLUTION

Athens ELEVTHEROTYPIA in Greek 21 Jan 82 p 9

[Excerpts] Large tankers, as well as other ships, have recently begun to lay anchor in front of the beach at Pakhi and Kineta. Traces of pollution (oil slicks, tar, etc.) are appearing more and more frequently and it is certain that the beach will soon be ruined by the customary sewage from these monsters alone.

The above is charged by a committee of Kineta residents in its letter, in which it also stresses that, because of the large number of ships, their type of cargo and the lengthy anchorage, there is danger of a serious accident like that which happened at Pylos. Then the environmental destruction of the beach and, more generally, of the Saronic Gulf will be complete.

The committee adds: "The beaches at Pakhi, Kineta and Agioi Theodoroi, after the destruction of the Elevsinian Gulf, are the only ones which were left with somewhat accessible ocean recreation for residents of the district of Western Attiki, with a total population of 1.5 to 2 million, one of the poorest areas of Attiki, in fact. West of this beach, a permanent threat of pollution exists, the Vardinioti refineries. Do not let another be created, worse this time, with the anchoring of tankers at Pakhi-Kineta beach. Do not let the story of destruction at the Elevsinian Gulf be repeated here. The responsibility for protection of this beach is large and more general. The residents of Kineta will fight for this."

The reason for the above letter was the recent accident on a tanker anchored in the area of Pakhi.

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## SARONIKOS POLLUTION EQUALS THAT OF ALL GREEK WATERS

Athens TO VIMA in Greek 24 Jan 82 p 8

[Excerpts] The Central Sewage Duct [KAA] empties into Keratsini at Akrokeramos. The Athenian domestic and industrial sewage flows into this duct and then into the Saronikos Bay in quantities which exceed 350,000 cubic meters a day. A large part, possibly one half of this quantity, is due to industry, not including of course the area of Elefsis with the huge installations of Petrola, Khalivourgiki, the Aspropyrgos refineries and the shipyards.

To get an idea of how much comes from industry, suffice it to say that the Chemical and Fertiliser Corporation [EKH] creates 50,000 cubic meters of liquid refuse daily, while solid pollutants in the air reach 600 tons.

#### The Sea Also

How is the situation in the waters of the Saronikos Bay which alone gets as much pollution as all the other Greek sea area put together? For what uses are the waters still suitable, and for what are they not? For how long will the sea ecosystem withstand this intensive misuse? Or is the damage permanent? Can it be restored to its previous condition?

These questions cannot be answered adequately today because it will be necessary to have a systematic and long observation of the quality of the waters, the type and quantity of unleashed pollutants and the impact of them on plant and animal life. But this has not been done yet. The sampling and ad hoc measurements and research can only give some indications and some information and provide some initial identifications. The following are some of the conclusions contained in the Environmental and Pollution Control Program [PERPA] report:

- a. Using as our indicator the colobacteria (i.e., microorganisms that may be pathogenic and carriers of microbes) the areas which are totally unsuitable for swimming are located mainly in Elefsis Bay, the Perama area reaching all the way to Floisvos. Measurements at certain points along these beaches showed that the limits may be exceeded on occasion due to the contribution of local sources with irregular outflow.
- b. It is also clear that the criterion for the pollution of coastal waters is not only the presence of a given number of microorganisms according to the traditional

assumptions of public health (in any event, even in the "suitable" areas protection from slight infections, skin diseases or allergic reactions is not achieved). An indication of pollution is the "enrichment" of the waters with organic substances resulting in their "affluence," i.e., the excess presence of nutrients. This situation favors the growth of special seaweeds whose decay creates a secondary pollution: lack of oxygen, decomposition of organic substances with nonair-needing bacteria, settling of dead substances to the bottom and eventually the deterioration of the quality of the waters.

c. The study of the biological effects of pollution on the ecosystem of Elevis Bay may classify pollution into chronic and acute. The first destroys a large number of species while the second results in the absence of oxygen destroying precisely those organisms which could withstand the chronic pollution. Moreover, the study goes on, the concentration of heavy metals (chromium, mercury, zinc, etc.) was higher than what could cause the death of selected organisms in the laboratory.

Is this invisible pollution perhaps threatening us more than the cloud since it destroys the very foundation of life?

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## ATHENS NOISE POLLUTION FACTORS LISTED

Athens TO VIMA in Greek 24 Jan 82 pp 8, 9

[Excerpts] In the 1960s the "Editors Lottery" advertised the attractive apartments on Patision Street as the prize for the top winners. Today fewer and fewer decide to buy an apartment facing the busy avenues. Noise is one of the main reasons for the change.

In the beginning the noise was a simple annoyance. Then the noise became unbearable. Now we speak about "noise pollution" everywhere: on the street, at work, in entertainment centers. What earlier was considered as one of the inevitable consequences of industrial civilization has now started to preoccupy seriously the collective consciousness.

Four years of measurements in the Athens area showed that the sound energy released from the various sources of noise in the area almost doubled, which is concluded from the increase of the average noise level by 3.3 dBA. At this rate we may make one prediction if appropriate measures to control noise are not taken in the meantime.

## 600,000 Noise Machines

As one might have expected, the main cause of annoyance from noise is the increase in the number of all kinds of vehicles. Their number today reaches 600,000 and their contribution to the noise pollution of the environment depends on many factors. Among them we include the traffic flow, i.e., the number of vehicles traveling on a street over a 1-hour period, the traffic composition, i.e., the percentage of passenger cars, buses, motorcycles, the speed, number of crossings, intensity of horns, etc. Other elements such as the size, incline, height and condition of the streets may locally affect the situation.

Naturally, the noise is affected by the condition of the motors. This refers primarily to used cars which are noisier than the new ones as well as changes in exhaust systems. Such changes are responsible for a large percentage of the great noise caused by motorcycles, 20 percent of which exceed 100 dBA when in motion, according to measurements.

It must be noted that the EEC recommends for the latter category of machines--over 500 cubic--a noise level not to exceed 85 dBA while Greek legislation specifies the

highest level for 12-ton trucks and 200 horse-DIN, 88 dBA, and for buses, 82 dBA (a regime which is to come into effect on 1 April 1982).

### Sleep, the Unknown

Another familiar Athenian neighborhood plague is the noise from air compressors and other construction equipment. Although those engaged in construction tend generally to respect the formal rest periods, still they violate certain hours of personal rest. Yet, there are technical solutions which can reduce noise to 15 dBA at little cost. The addition of soundproofing equipment or even barriers for work areas should not cost more than 20,000 drachmas.

Nothing, however, can compare with the high noise affecting 100,000 residents around the Alimos and Glyfada airports. Half of them wake up (how many times?) every night when a significant number of the 300 daily flights come to disturb their sleep. We refer of course to volumes which in many cases exceed 110 dBA during the day and 102 dBA during the night.

Since 1976, of course, there have been some measures for a change in the flight path of aircraft landing or taking off, reducing the volume of motors and changing the air corridors over Athens and Piraeus. In spite of the partial compliance of pilots, the situation seemed to have improved considerably. In the end, however, the gain was reduced because of the increase in the number of flights (the Athens airport serves 65 percent of the country's needs) and by the fact that the inhabited areas come increasingly closer to the airport while the population increases continuously.

One wonders whether the transfer of the airport to Spata will solve the problem or whether we must start talking about real decentralization. And a final observation: our country has no regulation imposing soundproofing on various categories of buildings. In the case of old buildings the cost of such soundproofing may be prohibitive. In new buildings the cost, though manageable, will considerably increase the initial cost of construction. If we want to move in such a direction in noisy Athens, for reasons of modernization, we must keep in mind that by requiring soundproofing of buildings we have a classic case in which the victim of pollution is called to pay the cost (the opposite, that is, of the principle that "whoever pollutes pays") and also how by this measure the exposure of people to external sound pollution will be downgraded.

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BRIEFS

ATHENS SEAT OF NEW SECRETARIAT--Nairobi--Athens has been selected to be the seat for a new UN secretariat which will coordinate activities related to the protection of the marine environment in the Mediterranean region. This was announced yesterday by the representative of the UN Environmental Program (UNEP) with headquarters in Nairobi. [Excerpts] [Athens I KATHIMERINI in Greek 13 Feb 82 p 3]

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SWEDEN

REPORT: MERCURY POISONING OF INLAND WATERS ALARMING

Stockholm SVENSKA DAGBLADET in Swedish 5 Feb 82 p 8

[Article: "Thousands of Lakes Threatened"]

[Text] Mercury levels in our lakes are considerably worse than previously believed. Researchers at the National Environmental Protection Board have found clear indications that several thousand lakes in southern and central Sweden have mercury levels that exceed the limit for blacklisting.

This was reported in MILJOAKTUELLT, the magazine of the Environmental Protection Board. The limit for blacklisting lakes is 1 mg/kg pike. Today about 200 lakes are blacklisted. The new study indicates, however, that several thousand small lakes are above the limit for blacklisting.

Airborne mercury from both domestic and foreign sources have raised the mercury contents of the lakes. Acidification also promotes higher levels in certain lakes, according to a study by researchers at the water quality laboratory of the Environmental Protection Board in Solna.

Researchers Kjell Johansson, Hans Borg, and Ingvar Bjorklund have investigated 59 lakes from Nora up to Karesuando in the north. The lakes that were investigated are forest lakes, poor in nutritious matter, that are affected neither by municipal nor industrial emissions.

Mercury levels in pike and sediment samples from lake bottoms were investigated. In the sediment the researchers found a clear connection between mercury levels and the geographic location of the lakes.

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